

The American Journal of Pharmaceutical Education

THE OFFICIAL PUBLICATION OF THE AMERICAN
ASSOCIATION OF COLLEGES OF PHARMACY

"You will recall that Pasteur was accustomed to say: 'Chance favors the prepared mind.' A high premium has been placed upon prepared minds. To be sure, the demand for men with highly specialized training has been unusual. But it is generally recognized that the broadly trained minds have made the most significant contributions. This is because the emergency has presented so many new and complex problems that only those with a broad and sound training in the fundamentals of the fields involved could grapple with them successfully. Those with only a handbook training have been at a serious disadvantage."—Edward H. Kraus.

Volume IX

October, 1945

Number 4

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THE AMERICAN JOURNAL
— OF —
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Edited by Rufus A. Lyman, M. D.

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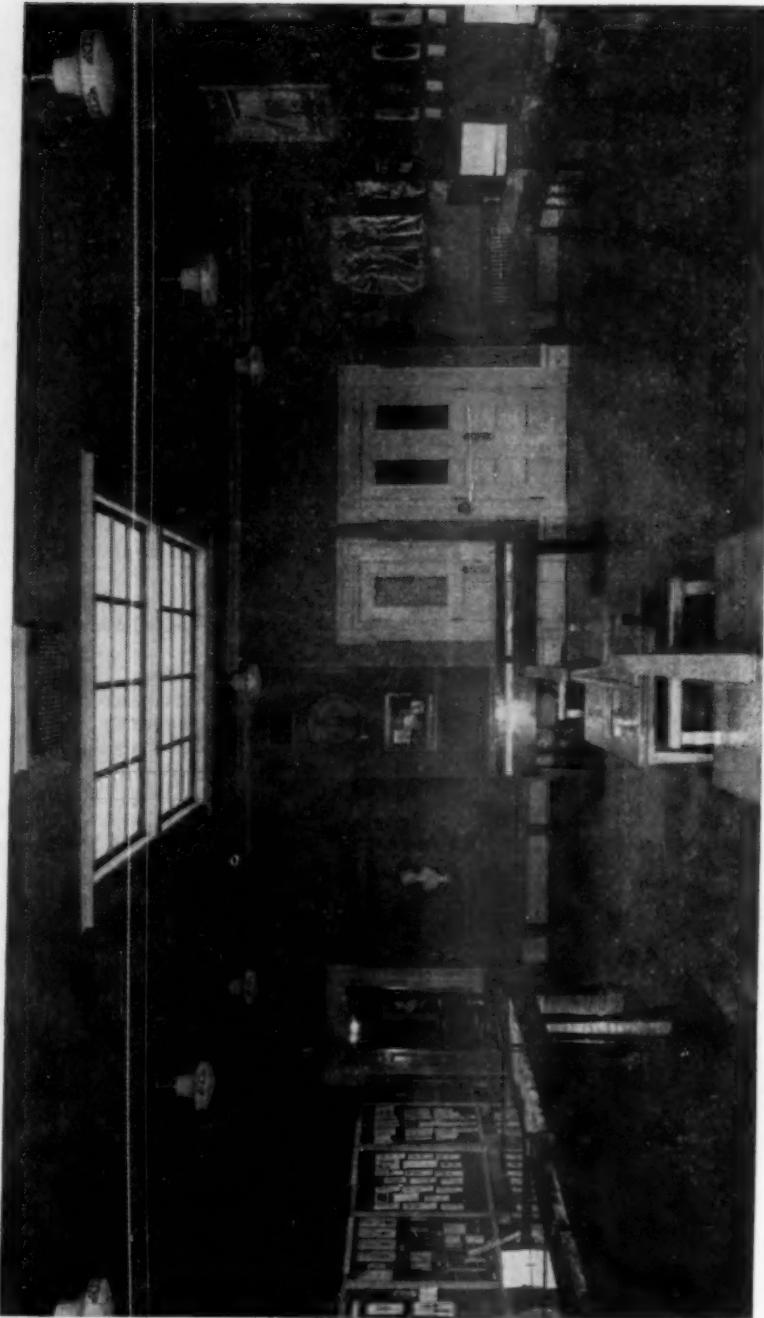
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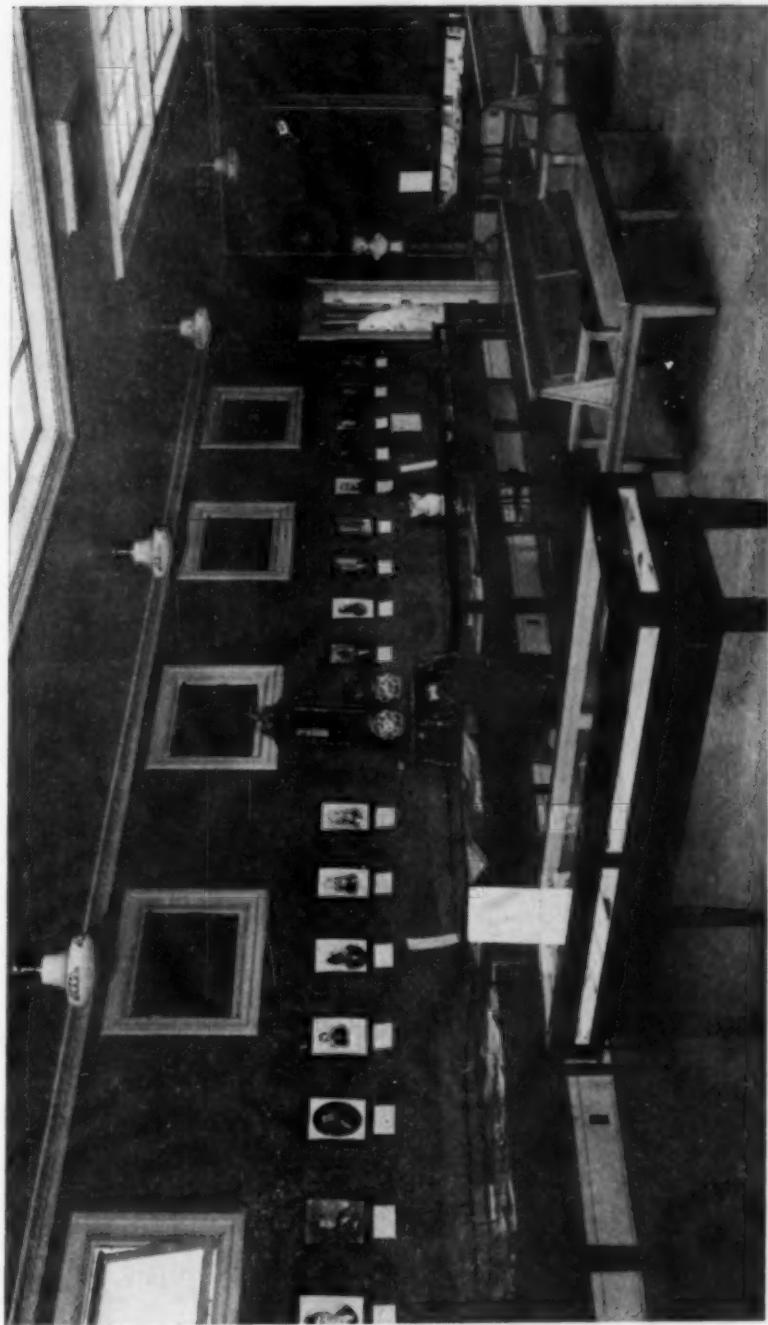
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THE SCOPE OF PHARMACY (Exhibition Room of Museum of The State Historical Society of Wisconsin at Madison)



View of the Exhibit Room from the Rear.

THE SCOPE OF PHARMACY (Exhibition Room of Museum of The State Historical Society of Wisconsin at Madison)



View of the Portraits and Show Cases on the Left Side of the Exhibit Room.

THE SCOPE OF PHARMACY (Exhibition Room of Museum of The State Historical Society of Wisconsin at Madison)



View of the Display Cases on the Right Side and the Portraits on the Middle Wall of the Exhibit Room.

The Scope of Pharmacy*

An Exhibit

GEORGE URDANG

American Institute of the History of Pharmacy

On January 22, 1941, the American Institute of the History of Pharmacy was founded on the campus of the University of Wisconsin on the initiative of Dr. Arthur H. Uhl, Director of the School of Pharmacy of the University of Wisconsin, and with the intention to create a center and clearing house for research, instruction and information in the history and all other non-technical aspects of pharmacy emphasizing particularly the development of, and meeting the needs of, American pharmacy.

On April second of the same year an organizational meeting was held at Madison, Wisconsin, and it was on this occasion that an exhibit was arranged, the idea of which was to intimate the large and diverse fields of human endeavor which are subject to the history of pharmacy. In other words, the exhibit attempted to make obvious THE SCOPE OF PHARMACY..

Held open to the general public for three weeks, the exhibit was given unusual attention by the local press, the University of Wisconsin faculty and students, and the public at large. The Director of the American Institute of the History of Pharmacy was present every afternoon in order to give the visitors the desired (and desirable) information. The Library School of the University of Wisconsin, other University departments and several civic groups asked for and were given special guidance and information.

It was the obvious success of the exhibit as a demonstration of the scope and meaning of pharmacy that was the stimulus for the writing of this report. It is hoped that the information given may serve as an encouragement, as a pattern, and perhaps even as an inspiration.

*Permission to publish the story of this exhibit was obtained from Dr. Urdang and the America Institute of the History of Pharmacy. The exhibit shows clearly and forcefully the relationship of pharmacy to and its influence upon the various fields of human endeavor and we believe it will be a valuable asset for teachers in the pharmaceutical sciences in promoting more effective teaching.—Editor.

The Exhibit

A. Address of the Director of the American Institute of the History of Pharmacy

It was with the following address that the Director of the Institute opened the exhibit:

"It is only a modest part of the books of pharmaceutico-historical interest owned by the Library of the University of Wisconsin and of the additional material available at Madison that is on exhibit. This selection, however, is representative of, or at least intended to represent, the scope and the meaning of the history of pharmacy.

"Each display rack opens a special view. Each showcase tells the special story of a special part of pharmaceutical development. Each picture on the walls means some special stage, some special movement, some special fact within this development.

"Portraits, illustrations, books!—There cannot be any doubt as to the fact that portraits are not only of interest but of real value for historical work. They very often reveal more about the person they represent than the individual concerned has ever dreamed of. Not unfrequently the attitude the portrayed person held is as much characteristic of his real nature as his features. It shows what he wanted to look like and sometimes it reveals how his contemporaries, represented by the painter concerned, looked at him.

"Illustrations have to be considered, evaluated and used in historical work from different points of view. They may be simple reproductions of substantial items. They may be allegoric or symbolic. They may finally be pictorial narratives, illustrating some story or telling a story of their own without any text. Some are self-explanatory. Others have been that way in their time but have lost their self-evidence in a changed medium, while a third group is only intelligible when thoroughly explained. They have to be considered and classified as to their subjects as well as to the period of their origin and the intentions which created them, as pieces of art, for themselves, and in connection with the text they may accompany or illuminate.

"What are finally, what mean to history books, these most

precious treasures of mankind, creating and maintaining the only real and most complete democracy, which can be imagined, that of the spirit?

"Being source of history as well as its implements they mean almost all to it as they do to all other branches of intellectual endeavor. Take the books away from the world and mankind would have lost its memory and with that, its identity. There would exist as have existed ten thousand of years ago hordes of savages here and there but no civilized mankind and, therefore, no history.

"Books are fixed and preserved precipitates of experience. They are answers to questions actually put as well as possible. Most of the questions are of a temporary nature derived from some temporary necessity and temporary or even definite answers to them have been found in books. The few frequently recurring questions have found and will find always new and other answers in the books of any old or new period of time. The sum total of these questions and answers, laid down in books, is what we call the development of mankind, or of culture, or of civilization. This development does not always mean progress. It very often means only change.

"And the task of history? It is that of factfinding as the preliminary and basic objective and that of sensefinding as the final and definite aim. What questions have been answered? What have these answers meant in their time and what do they mean now? What kind of development can be stated and what causes or incentives were responsible for it? To deal with these problems and, as far as possible, to solve them is the task of history. Naturally, every generation will have to find a new solution and it is for this reason that history has to be written over and over again. In spite of some sceptical doubt we *can* learn from history. There is some regularity, some law in the historical development which, when we know it and think of it at the appropriate moment, may help us to find the right decision and to avoid ways and means which have proved to lead to disaster or at least to failure.

"All I have said until now has dealt with history as a general concept. What about history of pharmacy in particular? The answer to this question is that history of pharmacy has

nothing in particular but its special subject. Quite as the general laws and rules of science and trade have to be applied to the practice of the profession, the general laws and rules of historical thought and work have to be applied to the history of pharmacy. There is nothing isolated in this world of ours. The development within pharmacy is determined to a very great extent by the general development, is the reflection of the general intellectual, material, and even moral situation on pharmacy.

"Every portrait and illustration and every group of books and other printed material exhibited has been briefly explained in a legend attached to the objects concerned. In their totality they reveal the wide scope of pharmacy and its close relation to general science and culture. The exhibit makes evident the glorious heritage which the members of the profession have to take care of, to follow, and to pass on to posterity."

B. Description of the Exhibit

There were thirteen showcases exhibiting *books and other printed material* devoted to the following subjects:

Europe:

1. The Development of the Pharmacopoeias
2. Books on Herbs
3. First Volumes of Important Pharmaceutical Journals
4. The Development of European Text and Reference Books

America:

5. The Evolution of an American Pharmaceutical Text
6. The Formation of Modern Pharmaceutical Education
7. The First Treatise on American *Materia Medica*
8. The Development of the United States Pharmacopœia
9. Pharmaceutical Journalism
10. Pharmaceutical History in the Individual North American States
11. Practical Pharmacy

General:

12. The Development of Pharmaceutico-Historical Literature
13. The General Cultural Aspects of Pharmacy

A fourteenth case was devoted to the memory of the American pharmacist John Uri Lloyd.

The *portraits* exhibited were arranged along the walls chronologically according to the dates of birth of the portrayed.

The *illustrations* were grouped according to the general idea which they represent or by which they could be classified.

The legends explaining the pictures and illustrations were attached to them.

As far as the *book cases* were concerned, on each of them was a poster with a tablet giving the story of the development to be illuminated. The titles of the books exhibited are listed at the end of this report. In the following a photograph of each case is given and the respective story added.

Book Cases:

1. The Development of the European Pharmacopœias



Legend: The term "*Pharmacopœia*" became since the second half of the 16th century the general designation of books of formulas for the preparation of drugs. Originally used without any discrimination for privately as well as authoritatively issued formularies the term "*Pharmacopœia*" has later been restricted mostly to books made official, hence obligatory in the political units concerned. Sometimes, especially in continental Europe, the word has been spelled "*Pharmacopœa*."

As forerunners or widely used sources of the modern pharmacopœias may be considered besides the "*De Materia Medica*" of the Greek Dioscorides (1st Century A. D.): of the Greek Dioscorides (1st Century A. D.):

1. The treatise on medicines of the Greco-Roman Galen (2nd Century A. D.);
2. The book "De Medicina" of the Roman Aurus Cornelius Celsus (1st Century A. D.);
3. The "Compositiones" of the Roman Scribonius Largus (1st Century A. D.);
4. The seven books on medicine of the Greco-Roman Paulus Aegineta (7th Century A. D.);
5. The three "Antidotarii Nicolai" (about 1100, 1280 and 1500);
6. The works of Mesue Jr., writings going under the name of a presumed Arab and representing the pharmacological quintessence of Arabian therapeutics and probably compiled in Italy in the 13th Century.

The development of the official pharmacopeias started in the city-republics of Italy and Germany, the first one being issued as the obligatory formulary for the territory of the city-republic of Florence in 1498 under the title "*Nuovo Receptario*," the second one to gain international importance, the "*Dispensatorium Valerii Cordi*" issued in the imperial city of Nuremberg in 1546.

In 1564 appeared the first edition of the "*Enchiridion*" or "*Dispensatorium Augsburgense*." The 1613 issue was to be of influence on the later *London Pharmacopæia* (1618).

The development of the Pharmacopeias mirrors the political situation of the territories concerned.

Thus the first "*British Pharmacopæia*" replacing the London, Edinburgh, and Dublin Standards, did not appear before 1864.

It was in 1872, one year after the establishment of a united German empire, that the first "*Pharmacopæa Germanica*" replaced the many official formularies, authoritatively issued in the individual German principalities.

In 1818, after the final defeat of Napoleon and the unification of France under the restored Bourbon regime the first "*Pharmacopæa Gallica*" appeared.

In Italy it took more than 20 years after the establishment of the present Italian Kingdom (1870) before the unification of the country was established firmly enough to allow the replacement of the local formularies by the "*Farmacopea Ufficiale del Regno d'Italia*" in 1892.

There were several attempts at a *Universal Pharmacopœia*. One of the earliest and widely used was that of the Frenchman Nicolas Lemery (1697).

2. Books on Herbs



Legend: The most important book of Greco-Roman antiquity dealing with *materia medica* was the treatise on drugs written by the Greek Dioscorides and generally known by the title of the Latin translation "*De Materia Medica*" (1st Century A. D.). For more than 1500 years its authority was scarcely challenged. It was translated into Latin several times and from Latin, less frequently from the Greek original, into many other languages and issued and commented upon again and again.

The most famous of these commented and annotated Latin translations was that of Pietro Mathioli the first edition of which was published in 1544 and, according to Flueckiger, followed by about 60 further editions and translations.

The "*New Kreuterbuch*," published in 1563 and shown here, is essentially a translation of Mathioli's Latin book into German.

Leonhard Fuchs' "*De Historia Stirpium*" and Hieronymus Bock's "*Kreutterbuch*," the first written on a thoroughly scientific basis and the other on a more empiric one, mean definite steps to own research and observation although recognizing the authority and using the work of Dioscorides.

That holds still more true of the "New Kreuterbuch" of Jacob Theodor called Tabernæmontanus, the first edition of which appeared in 1588 and which in 1613 was re-edited by the great naturalist Caspar Bauhin.

The last mentioned book contains the greatest amount of plant illustrations, that of Fuchs the most precise and beautiful, and that of Bock the most charming ones.

The "Herball" of Gerarde (1596) and especially the augmented second edition, issued by the London apothecary Thomas Johnson in 1633, was very popular on the English isles. According to Viets the "Receipts to Cure Various Disorders," sent by the London physician Stafford to the first governor of Massachusetts Colony, John Winthrop, Sr., in 1643, were mostly "taken from John Gerard's herbal."

The "Histoire Generale Des Drogues" of the Frenchman Pierre Pomet, finally, (1694) was of a purely descriptive character and not written for therapeutic purposes. Its main objective was to give to the trade in drugs the possibility to discriminate the drugs concerned and to recognize and eliminate adulterations. It has often been considered the first handbook on pharmacognosy.



Legend: The volume to the left represents a reproduction of a manuscript of the 5th Century, A. D., the so-called "Dios-

corides Codex Vindobonensis," preserved in the Austrian National Library at Vienna.

The manuscript was originally the property of Juliana Anicia, daughter of the Roman Emperor, Anicius Olybrius. Some of the drawings, which are in colors in the original, are still older. They represent copies of illustrations prepared by Crateuas, Latinized, Krateus, in the first century B. C.

The plant, shown and described on the opened pages, is crocus.

The volume to the right contains reproductions of the famous miniatures which adorn the Latin Galen manuscript of the 15th Century preserved in the National Library at Dresden.

On the page shown the miniature 37.181^v deals with the preparation of Dyapalma Ointment. In this preparation fresh palm leaves were used for stirring the melted ointment mass, thus incorporating their juice in the product.

3. First Volumes of Important European Pharmaceutical Journals



Legend: The predecessors of the pharmaceutical periodicals were the annual reports of the learned societies and academies in which the papers of the great pharmacists of the

18th century (Marggraf, Geoffroy, Scheele, etc.,) were published.

It was in 1780 that the German Apothecary Goettling started his annual "*Almanach oder Taschenbuch für Scheidekünstler und Apotheker*" which was followed in 1795 by another German pharmaceutical annual, the "*Berlinisches Jahrbuch der Pharmacie*."

It was finally the "*Journal der Pharmacie*," created in 1794 by the German apothecary, J. B. Trommsdorff, the appearance and style of which made it the world's first real journal in the modern sense of the word devoted exclusively to pharmacy. Of the other early German pharmaceutical journals the "*Archiv des Apothekervereins im nördlichen Deutschland*," created in 1822, gained special importance. Since 1835 published under the title "*Archiv der Pharmacie*," it was in 1924 merged with the "*Berichte der Deutschen Pharmazeutischen Gesellschaft*." Very popular was furthermore Gehlen-Buchner's "*Repertorium für die Pharmacie*" started in 1815, and the "*Pharmaceutische Centralhalle für Deutschland*" published since 1859, has been recognized until quite recently as one of the world's foremost scientific pharmaceutical journals.

In France the "*Journal de la Société des Pharmaciens de Paris*" opened in 1797 the long series of French pharmaceutical journals which have been published later on. It was followed in 1809 by the "*Bulletin de Pharmacie*" which changed its name to "*Journal de Pharmacie*" in 1815 and to "*Journal de Pharmacie et de Chimie*" in 1842. It is now the world's oldest continuously published pharmaceutical journal. The "*Répertoire de Pharmacie*," established in 1844, is another early French pharmaceutical journal still in existence.

In England the first journal connected with but not devoted exclusively to pharmacy appeared in 1824 under the title, "*The Chemist*," and existed two years only. Another journal under the same title was published from 1839 to 1888. In 1841 the organ of the Pharmaceutical Society of Great Britain, "*The Pharmaceutical Journal and Transactions*," since 1934

simply called, "*The Pharmaceutical Journal*," was founded. The most important English commercial pharmaceutical journal, "*The Chemist and Druggist*," was founded in 1859. "*The Pharmaceutical Times*" (1846) did not gain any importance.

The exhibit shows, furthermore, first volumes of Austrian, Dutch, Danish, Italian, Spanish, etc., pharmaceutical journals, and the last volume of a journal which after 82 years of honorable service to pharmacy lost its existence as a victim of German National Socialism: the "*Pharmazeutische Zeitung*."

The sentence which the editor of the "*Pharmazeutische Zeitung*" used as a motto for the last issue of the journal published in December, 1937, is a quotation from the great German philosopher Arthur Schopenhauer. It reads in English translation as follows:

"In my opinion, we should endeavor, from time to time, to see that which we possess as it would present itself to us after we had lost it. No matter what this may be; property, health, happiness, loved ones, wife, child, even horse or dog. For the most part the loss of these things first teaches us their real value."

4. *The Development of European Pharmaceutical Text and Reference Books*

5. *The Evolution of an American Pharmaceutical Text*

6. *The Formation of Modern American Pharmaceutical Education*

The stories to be told on the three topics above are so closely related that the books on which they have been based have been exhibited in one and the same especially spacious showcase. The books of group 4 are at the left side of the photo below. The five books in the middle row from right to left and the book marked by an iron rod in the upper row belong to group 5, while group 6 is represented by the four books from right to left in the lower and the two books from right to left in the upper row.



4. a. European Pharmaceutical Texts

Legend: From whatever angle we approach the development of the science of pharmacy we have to start with Dioscorides' *"De Materia Medica."* This work was the basis of the pharmacopœias and of the herbbooks, and it can surely be regarded as the first text and reference book on drugs.

Thus it is but natural that "the first real treatise on pharmacy in a modern sense . . . which became the model for all later textbooks of pharmacy" (Schelenz), the *"Compendium Aromatariorum"* of the Italian physician Saladin de Asculo (about 1450) was based on Dioscorides.

It was France that followed early in the 17th century with the *"Institutionum Pharmaceuticarum Libri V"* of Jean de Renou and remained for some time predominant in the field of pharmaceutical textbook literature reaching its climax in Baumé's classical *"Elémens de Pharmacie Théorique et Pratique,"* the first edition of which appeared in 1762. The period of early French pharmaceutical textbooks of universal importance may be considered closed with the *"Nouveau Traité de Pharmacie Théorique et Pratique"* published by E. Soubeiran, one of the three contemporary discoverers of Chloroform, in 1835-36.

The German textbook literature of general importance began in the 18th century. Its best known and most widely used and translated representatives were the *"Lehrbuch der Apothekerkunst"* of K. G. Hagen, the first edition of which appeared

in 1778, and the long series of textbooks published by J. B. Trommsdorff between 1790 and 1830.

There were no real *English* pharmaceutical texts until about the middle of the 19th century. Their place was taken in the 18th century by the dispensaries which were at once commentaries on the pharmacopœias and texts. Exhibited is an early edition of Quincy's Dispensatory.

The exhibit shows furthermore a Spanish pharmaceutical text of the first part of the 19th century.

4. b. European Reference Books.

Legend: Textbook as well as reference book was the German physician J. Cr. Schroeder's, "*Pharmacopœia Medico-Chymica*," first published in Latin in 1641. It appeared in an English translation in 1669 under the title, "*The Compleat Chymical Dispensatory*." In different editions, prepared, corrected and augmented by different authors, this book was the most used pharmaceutical reference book during the 17th and 18th centuries.

It is significant for the need met by books of this kind that J. H. Jungken's, "*Lexicon Chymico-Pharmaceuticum*," the first issue of which was published in 1693, lived likewise to see eight editions (the last in 1738) and that J. J. Woys', "*Gazophylacium Medico-Physicum*," was published between 1696 and 1757 in not less than 13 editions. The transition to modern times is represented by the "*allgemeines pharmaceutisch chemisches Wörterbuch*" of J. E. Trommsdorff, and the excellent "*Apothekerlexikon*," published between 1790 and 1799 by the founder of homeopathy, the physician Samuel Hahnemann. The most remarkable modern pharmaceutical reference books are the Frenchman Dorvaulx's "*l'Officine ou Répertoire Général de Pharmacie*," the first edition of which appeared in 1844 and the 14 volume, "*Realencyclopædie der gesamten Pharmazie*," compiled by Geissler (later Thoms) and Moeller.

5. The Evolution of an American Pharmaceutical Text

Legend: In 1846 William Procter, Jr., appointed the first professor of pharmacy at the Philadelphia College of Pharmacy, looked "in vain amongst the medical literature of the Eng-

lish language for a single work devoted exclusively and systematically to this branch of knowledge."

In 1847 the German apothecary, C. Fr. Mohr, published his "*Lehrbuch der Pharmaceutischen Technik*." The book was scarcely off the press when in September of the same year the English apothecary Th. Redwood, announced in the *Pharmaceutical Journal* his intention to translate it into English and to adapt it to English needs. In doing so he gave to Great Britain her first real pharmaceutical text. The preface of the book of Redwood is dated December, 1848. The book itself appeared soon after. As early as April, 1849, the above-mentioned, W. Procter, Jr., edited an *American* issue of Redwood's translation "with extensive additions" under the title "*Practical Pharmacy*," already used by Redwood. In 1856 E. Parrish published "*An Introduction to Practical Pharmacy*," and finally there followed in 1885 Joseph P. Remington's, "*The Practice of Pharmacy*," which gained widest distribution. The titles of these books reveal that it was the education of pharmaceutical technicians on which emphasis was laid until the early twentieth century.

6. The Formation of Modern American Pharmaceutical Education

Legend: The formation of modern American pharmaceutical education has been indicated in this exhibit by: 1. The first volume of "*The Pharmaceutical Syllabus*," the joint work of the state boards of pharmacy and the schools of pharmacy; 2. The "*Basic Material for a Pharmaceutical Curriculum*" published in 1927; 3. "*Proceedings of the Organization of the First and Second Meetings of the American Conference of Pharmaceutical Faculties*" (1900-1901); 4. The "*Annual Surveys of Research in Pharmacy and Proceedings of National Conference on Pharmaceutical Research 1933-34*"; 5. A. book on "*Answers to Questions Prescribed by Pharmaceutical State Boards*."

A sideline of American pharmaceutical education, the instruction by correspondence, is represented by a volume of lectures issued by the National Institute of Pharmacy in Chicago (1890).

7. The First Treatise on American Materia Medica



Legend: The collection of early editions of the treatise of the Spanish physician Nicolas Monardes, dealing with drugs coming from "*nuestras Indias Occidentales*," belongs to the most precious treasures of the Library of the University of Wisconsin.

Not only the first complete "*Historia*," published in 1574, but also the first part thereof, published in 1565, and the "*segunda parte*," published in 1571, are preserved at Wisconsin and could, therefore, be exhibited. The first translation from Spanish into Latin, published by Charles L'Ecluse in the same year in which the first complete issue of the original "*Historia*" appeared, i. e. in 1574, is likewise in the possession of the Wisconsin University Library. It was based on the two first parts only, while later editions represent translations of the complete "*Historia*." Early translations into French and Italian, a reprint of an English 16th century translation and finally a recent German translation complete the unique collection.

Two theses of students of the School of Pharmacy of the University of Wisconsin, devoted to special drugs dealt with by Monardes, show the didactic value of this collection. The fact of so many contemporary and later issues of the same text in different languages has proved to be very helpful as to the right interpretation of terms, the meaning of which is doubtful or has changed in the course of time. Thus this col-

lection serves the linguist as well as the pharmaceutical scholar.

8. The Development of the United States Pharmacopœia



Legend: In four essays E. Kremers has reproduced and commented upon documents which came into existence previous and were in some way preliminary to the United States Pharmacopœia: 1. The "*Receipts to Cure Various Diseases*" (1643) used by the first Governor of Massachusetts Colony, John Winthrop, Sr., in treating the sick in the Colony; 2. The list of drugs asked for by the surgeon Will Locke during the so-called King Philip's War (1676); 3 and 4. Two military pharmacopœias issued on American soil during the Revolutionary War, i. e., the so-called "*Lititz Pharmacopœia*" (1778) compiled for the use in the hospitals of the American army, and the "*Compendium Pharmaceuticum*" compiled by the Chief Physician of the French auxiliaries, Le Coste, for the use in the French hospitals (1780).

The exhibit shows furthermore the two predecessors of "*The United States Pharmacopœia*," i. e., "*The Pharmacopœia of the Massachusetts Medical Society*" (1808) and "*The Pharmacopœia of the New York Hospital*" (1816), and the long row of "*The United States Pharmacopœias*" from the first edition issued in 1820 to the present one. The first Spanish edition, issued in 1909, and the Chinese edition of the ninth decennial revision are likewise exhibited.

The development of the American Dispensatories and Commentaries to "The United States Pharmacopæia" is represented by copies of the two dispensatories which preceded "The United States Pharmacopæia," i. e., Coxe's "The American Dispensatory" and Thacher's "The American New Dispensatory," and of the books accompanying the Pharmacopæia, i. e., "The Dispensatory of the United States," "The Uational Dispensatory," and Oldberg-Wall's "A Companion to the United States Pharmacopæia."

A big volume containing the collection of circulars prepared and discussed by the members of the Committee of Revision elected at the Pharmacopæia Convention of 1890 gives an idea of the immense work done by American pharmacists in the interest of public welfare.

The book was the personal property of Dr. Frederick B. Power. On the page to the right begins his comprehensive report on volatile and fatty oils.

9. American Pharmaceutical Journalism



Legend: When in 1825 the recently (1821) founded Philadelphia College of Pharmacy published the first issue of its journal, it created not only the first American periodical devoted exclusively to pharmacy but the first journal of this kind written in English.

The exhibit shows the first issue of the "Journal of the

Philadelphia College of Pharmacy" as well as the new series started in 1829, and the issue which for the first time bears the name under which the journal up to the present occupies an honorable place among the pharmaceutical journals of the world: "*The American Journal of Pharmacy*."

With the "*American Druggists' Circular and Chemical Gazette*," created in 1857 and discontinued in 1940, the first strictly independent American pharmaceutical trade journal appeared. Together with "*the Pharmaceutical Era*," founded in 1887 and discontinued in 1933, it represented the all round type of pharmaceutical journal serving successfully the commercial as well as the professional needs of American pharmacy.

The first issue of the "*New Remedies*" (1872) and the copy of its successor, the "*American Druggist*," in the exhibit intimate the change from a more professional to a more commercial type which so many American pharmaceutical trade journals have undergone.

The house organs of pharmaceutical manufacturers and wholesalers are represented by E. R. Squibb's "*Ephemeris of Materia Medica, Pharmacy, Therapeutics, and Collateral Information*" and Tilden's "*The Journal of Materia Medica and Pharmaceutic Formulary*," both strictly scientific, and the primarily commercial periodicals "*Meyer Brothers' Druggist*" (Meyer Brothers and Co., St. Louis) and "*Drug Topics*" (McKesson and Robbins, New York), the latter having developed after the first World War into an independent "national newspaper for retail druggists."

The first "*Proceedings of the American Pharmaceutical Association*" and the first volume of the "*Journal of the American Pharmaceutical Association*," the "*National Association of Retail Druggists Notes*," the "*American Drug Clerks Journal*" and "*The Pacific Pharmacist*" (including the Proceedings of the California Pharmaceutical Association) give an idea of the beginning of the journalizing of the proceedings of American pharmaceutical associations.

The "*Journal and Transactions of the Maryland College of Pharmacy*," "*The Pharmacist*" of the Chicago College of Pharmacy, and "*The Apothecary*" of the Illinois College of

Pharmacy witness the shortlived attempts at entering the field of general pharmaceutical journalism by individual colleges of pharmacy.

An interesting development is shown by the "*Pharmaceutische Rundschau*" founded in 1883 by Frederick Hoffmann as a reviewing German language journal with educational principles and edited by its founder until 1896, and its English continuation, the "*Pharmaceutical Review*," edited until 1900 by Hoffmann and Edward Kremers and from 1901-1909 by the latter alone. It was with the idea to supplement this reviewing journal with one devoted to original articles only that E. Kremers in 1898 created the "*Pharmaceutical Archives*."

The journal of the Mexican Pharmaceutical Association, "*La Farmacia*," is a representative of the Hispano-pharmaceutical press within the Americas, while "*the Canadian Druggist*" represents pharmaceutical journalism in Canada.

10. Pharmaceutical History in the Individual North American States



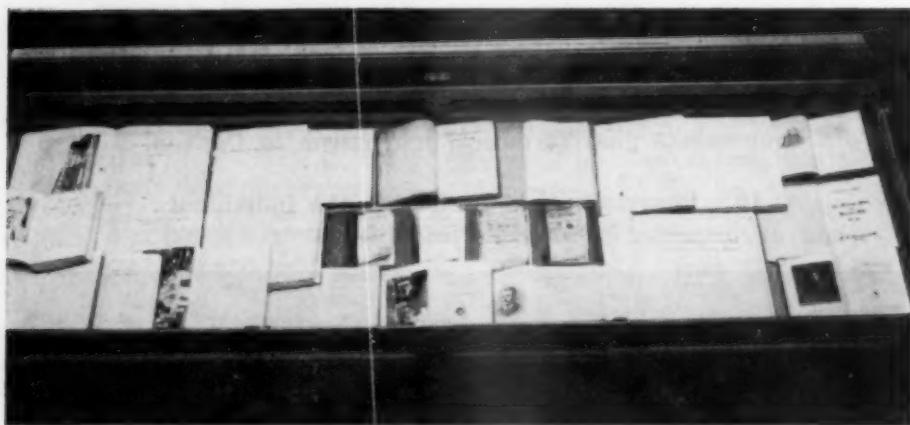
Legend: Pharmaceutical history in the individual American states is in this exhibit more symbolized than represented by proceedings of State Pharmaceutical Associations from Alabama to Wisconsin including the Philippines.

How local history of pharmacy can and should be cultivated is shown by the example of Wisconsin. In a special

volume and a series of individual copies of "*the Badger Pharmacist*," devoted exclusively to the general development and the special phases of Wisconsin pharmacy, this history has been given continuous and thorough attention.

A chronological registration of all the officers of the Wisconsin Pharmaceutical Association giving the exact data as to the time and the kind of their offices, compiled by E. J. Boberg, offers a further example for association activity in the field of local pharmaceutical history.

11. Practical Pharmacy in the United States of America



Legend: The early American Colleges of Pharmacy were associations for co-operative promotion of practical pharmacy, the schools established by them constituting only one and not even the most important part of their activities.

Thus the Philadelphia College of Pharmacy, founded in 1821, issued in 1826 "*The Druggist's Manual*, being a price current of drugs, medicines, paints, dyestuffs, glass, patent medicines, etc., with Latin and English synonyms, a German, French and Spanish catalogue of drugs, tables of specific gravities, etc., etc., and a variety of useful matter."

The early business of the Massachusetts College of Pharmacy, founded in 1823, was almost exclusively transacted in reference to prices. The first of the many price lists, issued by the College is exhibited in form of a photostat. Photostatic copies of price lists of Boston druggists from the end

of the 18th and the early 19th centuries give an idea of the kind of business executed by early American professional pharmacy. More recent publications on retail pharmacy complete the picture.

The wholesale business and the manufacturers are represented by publications of the Druggist Research Bureau and the National Wholesale Druggists' Association, by anniversary booklets of individual concerns and scientific or commercial informations issued by them to the benefit of the retailers.

A biography of L. K. Liggett, the man whose name means the creation of a special system of business conduct within American pharmacy, completes this part of the exhibit.

12. The Development of Pharmaceutico-Historical Literature



Legend: As early as in the 18th century there appeared historical essays and pamphlets on pharmaceutical subjects. As the first attempt at a systematic arrangement and performance of the history of world pharmacy as a whole, however, is generally considered Philippe's "*Histoire des Apothicaires*" (1853), a copy of which is in this exhibit.

The comprehensive work of Hermann Schelenz on world pharmacy, published in 1904 under the title "*Geschichte der Pharmazie*" and exhibited here, may be considered the first attempt at a collection of all available details of pharmaceutical meaning and interest. It represents until the present the most complete pharmaceutico-historical archive in book form.

The other two great German historians of pharmacy of the time around 1900, Berendes and Peters, are represented by the books "*Die Pharmacie bei den alten Kulturvölkern*" (Berendes) and the American edition of Peters' "*Aus Pharmazeutischer Vorzeit*," published by Netter under the title "*Pictorial History of Ancient Pharmacy*."

The comprehensive literature on national histories of pharmacy owned by the Library of the University of Wisconsin is represented by the most recent books on German (Adlung-Urdang), French (Bouvet) and American (Kremers-Urdang) pharmacy. As to England the historical sketch of Bell and Redwood, published in 1880, is exhibited.

As to the relics of the pharmaceutical past, the treatise on pharmaceutical antiquities published by J. A. Haefliger under the title "*Pharmazeutische Altertumskunde*," and the catalogue of "*The Squibb's Ancient Pharmacy*" (Urdang-Nitardy) are exhibited.

The histories of the New York and Philadelphia Colleges of Pharmacy (C. Wimmer and J. W. England respectively), LaWall's "*Four Thousand Years of Pharmacy*," the symposium of essays written by best known American pharmacists and published by The National Conference of Pharmaceutical Research in 1931 under the title "*Fighting Disease with Drugs*" (edited by J. C. Krantz, Jr.), and finally the golden anniversary issue of The Druggists Circular containing a most valuable collection of essays on the history of American pharmacy, bear witness of the attention American pharmacists have paid to the history of their profession.

The biographical part is represented by Reber's gallery of famous pharmacognosists, a brochure devoted to the great French historian of pharmacy, P. Dorveaux, and a biography of Lyman Spalding, the father of the United States *Pharmacopœia*, written by his grandson.

The two associations devoted to the history of pharmacy are represented by their journals (the French "*Société d' Histoire de la Pharmacie*") and publications in pamphlet and book form (the German "*Gesellschaft für Geschichte der Pharmazie*").

13. The General Cultural Aspects of Pharmacy



Legend: As a profession of a particular character and executed by learned men who not infrequently were wealthy and played a part in social life, pharmacy employed the fine arts and general literature as well as was paid attention by them.

The exhibit shows early pictorial and descriptive performances of the apothecary as a type, among them very rare old books and copies from limited reproduction issues. Books and pamphlets published by Kremers and by Urdang deal with the rôle attributed to the pharmacist by the poets and with his activity as a poet. A biography of the great English poet John Keats, who started his career as an apothecary, reminds of this great asset of poetry coming from pharmacy. That his contemporaries were well aware of Keats' pharmaceutical background becomes evident from an attack published against him in Blackwood's Edinburgh Magazine in August 1818. It contained the following advice: "It is better to be a starved apothecary than a starved poet; so back to the shop, Mr. John, back to plasters, pills, and ointment boxes, etc." A book of Schelenz gives an idea of the knowledge of drugs displayed in the works of Shakespeare.

The sweeping employment of the peculiarities of the profession of pharmacy for political satire by the great French caricaturist Daumier, although often of utmost poignancy, is nevertheless a compliment to its social standing and its importance to public welfare.

The ethical aims and contents of the profession find a somewhat naive but even therefore convincing recognition in pictures of Christ as an apothecary.

The exhibited Ex-Libris of pharmacists show how differently and characteristically subjects pertaining to pharmacy can be used for artistic purposes. There were exhibited book-plates of Charles H. LaWall, Edward Kremers, R. M. Dadd, F. W. Nitardy, B. Reber, Daniel Hanbury, Mirbelle Netherwood and finally of the *Fédération internationale pharmaceutique*.

An abundantly illustrated article on "Pharmacy and Pottery" (*American Druggist*, July and August, 1939), written by Urdang and Nitardy, touches the great chapter of art applied to Pharmacy.

A brochure describing an exhibit of pharmaceutical antiques, arranged by George Urdang at the Schlossmuseum (Museum of the former Royal palace) in Berlin (Germany) in 1929 contributes to the solution of the question how to arrange pharmaceutico-historical collections, museums and exhibits.

14. John Uri Lloyd (1849-1936)

It is an example of the very rare connection of the talents of a scientist, an industrialist and a novelist to whom the last show case of the exhibit was devoted.



Legend: One of the greatest and most versatile pharmacists this country could ever boast of, J. U. Lloyd was a leading research worker in the field of colloid chemistry and played an important part in the development of plant chemistry and drug extraction. Furthermore, he excelled as a pharmaceutical manufacturer, a teacher, and an author not only of scientific literature but of novels which gained wide recognition and lived to see many editions. J. U. Lloyd is one of the few American pharmacists who became prominent in the field of imaginative literature. Finally, together with his brother and colleague, Curtis Gates Lloyd, he created one of the most comprehensive collections of therapeutical and pharmaceutical books, pamphlets, etc., within the Americas, the "Lloyd Library" in Cincinnati, containing besides modern books, valuable publications out of the pharmaceutical past.

In 1916 the well-known German chemist Wolfgang Ostwald translated essays on pharmaceutical technic, published by John U. Lloyd in the Proceedings of the American Pharmaceutical Association between 1879-1885, into German and published this translation first in his "*Kolloid-Chemische Beihefte*" and then as a separate brochure.

The fact of this quite unusual reprinting and reissuing of old publications means one of the greatest tributes paid to an American scientist by European science. In the preface Ostwald states that the essays of Lloyd represent "unusual original work . . .," attributing to their author "really exemplary persistence and penetrating clarity of spirit."

Portraits of Men Important to American Pharmacy

In the following the legends, attached to the portraits exhibited, are reproduced.

1. John Morgan (1735-1789)

Legend: The physician John Morgan obtained a deep and determining insight into pharmacy when in the beginning of his career acting as an apothecary at the Pennsylvania Hospital.

In his pamphlet "*A Discourse upon the Institution of Medical Schools in America*," published in 1765, Morgan advo-

cated ardently the separation of medicine and pharmacy in the U. S. A. Among other statements he remarked:

"We must regret that the very different employment of physician, surgeon and apothecary should be promiscuously followed by any one man . . . The apothecary is to prepare and compound medicines as the physician shall direct . . .

"The wisdom of ages approved by experience, the most certain test of knowledge, has taught us the necessity and utility of appointing different persons for these different employments, and accordingly we find them prosecuted in every wise and polished country.

"The paying of a physician for the attendance and the apothecary for his medicines apart is certainly the most eligible mode of practice both to the patient and practitioner. . . They [the patients] ought to know what it is they really pay for their medicine and what for medical advice and attendance."

2. Lyman Spalding (1775-1825)

Legend: Physician and chemist, the "Father of the United States Pharmacopeia." His knowledge, zeal, and diplomacy and the support given to his effort by the influential physician, editor, statesman, and scientist Samuel L. Mitchill made in 1820 the United States Pharmacopœia a reality.

3. Franklin Bache (1792-1864)

Legend: Franklin Bache, a great grandson of Benjamin Franklin, physician and for 10 years (1831-1841) Professor of Pharmaceutical and General Chemistry at the Philadelphia College of Pharmacy, became important to American pharmacy by his cooperating with George B. Wood on the "*United States Dispensatory*" from its first edition in 1833 until his death.

4. George B. Wood (1797-1879)

Legend: The physician George B. Wood became connected with pharmacy as Professor of Chemistry and later of *Materia Medica* and Pharmacy at the Philadelphia College of Pharmacy (1822-1835). He was of eminent influence on sci-

entific and to some degree on practical American pharmacy by his being for several decades the decisive factor in the revisions of the United States Pharmacopœia and by the issuance of not less than 14 editions of the comprehensive "*United States Dispensatory*," a commentary on the pharmacopœia.

5. William Procter, Jr. (1817-1874)

Legend: William Procter, Jr., has been called, "The Father of American Pharmacy." Being appointed Professor of Pharmacy at the Philadelphia College of Pharmacy in 1846, he was the first pharmacist to occupy a professorship of pharmacy in America. He published the first textbook on pharmacy compiled by an American pharmacist for American students of pharmacy. A practicing pharmacist besides his scientific and academic activities, Procter became the recognized ideal representative of American professional pharmacy.

6. Edward R. Squibb (1819-1900)

Legend: In his early days an apprentice in a drugstore, then an M. D. and a surgeon in the navy and finally a pharmaceutical manufacturer, E. R. Squibb became equally important to American pharmacy and medicine. He improved considerably the technic of percolation, putting the results of his research unselfishly to the disposal of pharmacy at large. His position between medicine and pharmacy opened the way for the modernization of the United States Pharmacopœia by organized American pharmacy, and as a manufacturer he made American pharmaceutical industry at large quality conscious.

7. Charles Mohr (1824-1907)

Legend: German born American pharmacist, pharmaceutical manufacturer, and botanist. He was one of the most prominent investigators of the Flora of North America, especially as far as forest botany was concerned, and one of the first forester agents in the U. S. government.

8. John M. Maisch (1831-1893)

Legend: German born pharmacist, for 27 years teaching at the Philadelphia College of Pharmacy and its Dean 1879-1893. Maisch belongs to the great American pharmaceutical

teachers and scientists, his "*Organic Materia Medica*" having been the dominant text in this field, and he was the first American to receive the Hanbury Medal, the highest distinction organized English pharmaceutical science has to bestow. His greatest and most lasting contribution to American pharmacy was due, however, not to his scientific but to his practical genius. It was John M. Maisch who was greatly instrumental in promoting the founding of state pharmaceutical associations and in initiating legislation stating not only the duties, but also the rights of the profession.

9. Alfred Benjamin Prescott (1832-1905)

Legend: A. B. Prescott organized at the University of Michigan in 1868 the first State University School of Pharmacy in the United States, and made this School an academic place of instruction independent from drugstore practice. He did remarkable research work, especially as to the composition of the alkaloidal periodides. His recognition within chemistry is proved by his election as a President of the American Chemical Society and as a Fellow of the Chemical Society of London. He was the author of several texts, especially in the field of chemical analysis.

10. C. Lewis Diehl (1840-1917)

Legend: German born pharmacist, research worker, and teacher. For 35 years he reported in the proceedings of the American Pharmaceutical Association on the progress of pharmacy covering the entire field of pharmaceutical science and technic all over the world and making the results of this progress available to American pharmacy.

11. Charles Rice (1841-1901)

Legend: German born hospital pharmacist, linguist and world famous Sanskrit scholar. It was he who was mainly responsible for the reform of the United States Pharmacopoeia (seventh edition, published in 1882) and the modernization of the work of revision.

12. S. A. D. Sheppard (1842-1915)

Legend: Boston pharmacist and for 22 years treasurer of the American Pharmaceutical Association.

The singularity of Sheppard and his special importance to American pharmacy lies in his quality as a discriminating collector of pharmaceutical literature. He was one of the few bibliophiles in the Americas who specialized on pharmacy. He collected the "Sheppard Library," consisting of about 2500 volumes, among them about 300 pharmacopœias of different countries and periods, which he bequeathed to the Massachusetts College of Pharmacy.

13. Oscar Oldberg (1846-1913)

Legend: Swedish born pharmacist. In 1880 he was the leading spirit in the organization of the Illinois College of Pharmacy (later part of Northwestern University) which he served as teacher and dean until 1911. His several texts influenced generations of young pharmacists. His "*Home Study in Pharmacy*" was the most significant and most used American attempt to convey the knowledge required for pharmaceutical license without the attendance of a school. On the other hand it was the same man who actively and successfully fought for changes in the old line college education.

14. Joseph P. Remington (1847-1918)

Legend: Remington, after having served the profession as manufacturer and as retail pharmacist, was for 44 years connected with the Philadelphia College of Pharmacy, from 1893-1918, i. e., for 25 years, as its dean. Active in almost all branches of the profession, Remington gained his widest recognition through his textbook "*The Practice of Pharmacy*" which has survived him. The Remington Honor Medal, instituted in 1919 on the instigation of Dr. Hugo H. Schaefer by the New York branch of the American Pharmaceutical Association as the first national honorary award for distinguished services in pharmacy in this country, perpetuates the memory of Remington in American pharmacy.

15. Frederick B. Power (1853-1927)

Legend: Organizer and first director of the Course in Pharmacy at the University of Wisconsin, Fr. B. Power achieved world fame as Director of the Wellcome Chemical Research Laboratories in London (1896-1914). From 1916-1919 Power was head of the phytochemical laboratory of the

United States Department of Agriculture. His study of chaulmoogric and hydnocarpic acids represented a most valuable contribution to the fight against leprosy as well as to the chemistry of the fatty acids. He was elected a member of the American National Academy of Science.

(Below the portrait a dedicatory address was exhibited, delivered to Power by the staff of the concern of Burroughs Wellcome & Co. on the occasion of his being distinguished with the Hanbury Gold Medal in 1914.)

16. C. S. N. Hallberg (1856-1910)

Legend: Swedish born pharmacist, manufacturer, professor of pharmacy at the Chicago College of Pharmacy (1890-1910) and above all one of the most vivid, most stirring and most productive pharmaceutical journalists covering a wide variety of subjects.

17. Martin I. Wilbert (1865-1916)

Legend: One of the few earlier American hospital pharmacists (1891-1908) who used the special opportunities of hospital pharmacy for research. Wilbert worked from 1908-1916 as Assistant in the Division of Pharmacology of the Hygienic Laboratory, United States Public Health Service. American pharmacy is especially indebted to Wilbert for many and excellent publications on its history.

18. John Alfred Dadd (1829-1895)

Legend: English born and educated pharmacist and Wisconsin pioneer druggist. J. A. Dadd was chairman of the Milwaukee local Board of Examiners appointed by the Mayor of Milwaukee in 1876 as the first pharmaceutical examination board within the State of Wisconsin. He was likewise the first President of the Wisconsin State Pharmaceutical Association organized in 1880.

19. Albert Henry Hollister (1843-1911)

Legend: Wisconsin pioneer retail, wholesale and manufacturing druggist. In the Civil War he reached the rank of First Lieutenant and later on that of a Captain in the Na-

tional Guard. The State of Wisconsin appointed him a Colonel. He occupied the highest positions Wisconsin, local and national pharmacy have to offer, having been President of the Wisconsin Pharmaceutical Association, as well as of the National Retail Druggist Association and finally First Vice-President of the American Pharmaceutical Association.

In his last will he bequeathed \$10,000 for the establishment of a fellowship in pharmacy at the University of Wisconsin and the same amount for the support of pharmaceutical literature under the administration of the State Historical Society of Wisconsin.

20. Louis Lotz (1843-1923)

German born and educated pharmacist whose pharmacy in Milwaukee, established according to German patterns, became widely known throughout the state because of its and its owner's highly professional character.

Lotz was a man of keen interest not only in the science and art of pharmacy, but also in archeology, ethnology, general literature and the fine arts. He was considered an authority on the prehistoric remains of the South West, and he not only collected much material but prepared models of the cliff dwellers.

After the death of Lotz his collections were contributed, in large part, to the Museum of the State Historical Society of Wisconsin.

21. Adam Conrath (1849-1901)

Legend: German born prominent Wisconsin pioneer pharmacist. Adam Conrath was the only pharmaceutical graduate (Philadelphia College of Pharmacy) appointed on the first Wisconsin State Board of Pharmacy (1882). He was greatly interested in the professional progress of the younger generation and was instrumental in the fostering of university education in pharmacy by the State of Wisconsin. A number of later prominent Wisconsin pharmacists served their apprenticeship under Adam Conrath. Besides his routine pharmaceutical work Conrath carried out ordinary analytical work, such as water analyses, etc.

22. United States Pharmacopœial Convention 1900

Legend: The picture shows 26 officers and members of the Eighth (1900) Decennial Convention for the Revision of the United States Pharmacopœia, and of the New Committee of Revision.

*Illustrations Under Glass***1. William Tully, M. D. (1785-1859)**

It was in order to demonstrate by means of a characteristic example the activity of American physicians as inventors of special formulas, so common until the end of the 19th century, that two pictures showing W. Tully, physician, pharmacologist, for some time Professor of Medicine at Yale University and inventor of the famous "Tully Powder" together with the formula of his powder, were exhibited.

2. Pharmaceutical Bookplates

There were seven characteristic bookplates of German and Swiss origin respectively shown:

1. Ex-Libris of Herman Gelder, pharmacist in Berlin and for some time one of the officers of the German Society for the History of Pharmacy. It represents a reproduction of the 16th century pharmacy the original of which has been produced by the famous wood engraver Jost Ammon and was first published in the book "*Eygentliche Beschreibung Aller Stände* in 1574;

2. Ex-Libris of Alexander Tschirch, late Professor of Pharmacy at the University of Bern, symbolizing his scientific work;

3. Ex-Libris of the Pharmaceutical Institute of the University of Bern showing a scientist with a retort in his left hand and with his right hand leafing a book in obvious need for an immediate reference. Through an open window a view of the city of Bern is offered.

4. Ex-Libris of P. A. Oesterle, late Professor of Pharmacognosy at the University of Bern, showing in the center a foxglove branch, a primitive distillation apparatus and a

serpent crowned by the alchemistic symbol for arsenic. Flowers of chamomile and seven alchemistic symbols form the border around this center;

5. Ex-Libris of the Swiss Pharmaceutical Society, showing a romantic Swiss landscape with an armed woman in the center, and beneath it various pharmaceutical apparatus and implements grouped around an owl;

6. Ex-Libris of the late E. A. Merck, in which two retorts intimate the professional character of the owner, while a bounding deer shown against the background of a wide and open landscape symbolizes his out of door activities;

7. Ex-Libris of the late Louis Merck, showing a witch in full activity reciting her cantations over a steaming cauldron. A medicine bottle in the lower right corner intimates that it is medicine that she is preparing.

(See also "The General Cultural Aspects of Pharmacy.")

3. Physician and Apothecary in the so-called "Heidelberger-Totentanz" (the dance of the death, a sequence of pictures produced at Heidelberg)

Legend: These pictorial representations of the approach of the death to representatives of different callings became popular in Germany after the great plagues in the 15th and 16th centuries.

4. Christus as Apothecary

There were three reproductions of different types of this special kind of symbolic painting shown:

a. A circular glass painting of the year 1630, preserved in the "Schweizer Landesmuseum" at Zurich;

b. A square glass painting produced about 1700, preserved at the same place;

c. A painting serving as an altarpiece in the Lutheran Church in Werder on the Havel (Germany) and probably produced during the first half of the 18th century.

See also "The General Cultural Aspects of Pharmacy."

Display Racks

In the following the illustrations exhibited on display racks are listed and the legends attached to them reproduced:

1. Patron Saints of Pharmacy*a. Holy Virgin*

Legend: Emblem of the guild of the apothecaries of Florence, showing the Saint Patron of the guild, the Holy Virgin with the Child.

The emblem represents one of the most beautiful works of art from the work shop of the famous sculptors della Robbia (15th century).

b. Cosmas and Damian

Legend: Arabic-Christian twin brothers who are said to have given medical and medicinal help gratuitously. After their martyrdom in 303 A. D. both brothers became the favorite Patron Saints of medicine and pharmacy in all Christian countries. Of the many pictorial performances made of them through the ages were exhibited:

- a. A reproduction of an apsis mosaic of the Church *San Cosma e Damiano* at Rome (early sixth century A. D.), picturing the introduction of the two martyrs to the Redeemer by the Apostles Peter and Paul;
- b. A reproduction of an Apsis mosaic of St. Michael's Church at Ravenna (late sixth century A. D.), picturing the martyrs in a somewhat conventional manner;
- c. A reproduction of an illustration contained in a 16th century Dutch legend booklet and showing the martyrs in the gown of medical scholars;
- d. Reproductions of Italian Renaissance Statues ornating the Medicean Chapel at Florence, S. Cosimo sculptured by G. A. Montorsoli, S. Damiano by Raffaelo da Montelupo. In contrast to the performances mentioned before, these statues do not express any religious sentiment, representing however the revival of antique artistical conception and technic at its best;
- e. Reproductions of aquarelles painted in 1932 and 1933

by the German painter R. E. Hoecker. Here for the first time a naturalistic approach to the given subject is attempted. The paintings show two typical Arabs in equally typical rooms. The medico-pharmaceutical activity of the brothers is intimated by some jars and utensils and dried herbs, while their holiness is not so much radiating from the entire composition as attached to the brothers by adding halos to their heads and a small crucifix in the room of St. Cosmas.

2. Pharmaceutical Containers (faience and glass-ware), mortars and instruments from the 15th to the 19th century

The illustrations arranged on this display rack together with the legends explaining them were taken from the Catalogue of E. R. Squibb and Sons' collection of pharmaceutical antiques, prepared by George Urdang in collaboration with F. W. Nitardy and published in 1940 under the title "*The Squibb Ancient Pharmacy*."

3. The International Scope of an Early Pharmacopœia

The idea of this exhibit was to evidence the international dissemination and the longevity of early pharmacopœias by means of a typical example. There were shown photostats of the title pages of the following editions of the "*Dispensatorium Valeri Cordi*," the first Middle European formulary to become official for the territory of a distinct political unit (Nuremberg 1546) after the Florentine "*Nuovo Receptario*" (Florence 1498). The arrangements had been made geographically.

a. *Nuremberg*: Printed by: Joh. Petreius, 1546; Christopher Lochner and Johannes Hofmann, 1592; Paulus Kauffmann, 1598 and 1612; Johannes Andreas Endter and Wolfgang Junior (Haeredus), 1666.

b. *Leyden*: Printed by: Officina Plantiniana, Franciscus Raphelengius, 1590 and 1599; Joannis Maire 1618, 1627, 1637 and 1651.

c. *Amsterdam*: Printed by: Cornelius Claesz, 1592 (translation into "Neerduyts").

d. *Antwerp*: Printed by: Officina Christophori Plantini, 1568, 1580, and 1608.

e. *Lyons*: Printed by: Theobaldus Paganus, 1549, 1552, 1553, 1561; Joan Francis de Gabiano, 1554; Ludovicus Cloquemin, 1571 and 1572; Joan. Ant. Huguetan, 1600.

f. *Paris*: Printed by: Joannis Roigny, 1548.

g. *Venice*: Printed by: Pietro Bogello, 1558 (translation into Italian); Officina Erasmiana, Vincentius Valgrisius, 1554, 1556, 1563.

h. *Naples*: Printed by: Jacobus Gaffarus, 1622.

It may be mentioned that the limited place offered by the display rack did not allow the exhibition of the entire Madison collection of the photostats concerned.

4. Famous European Pharmacists

a. *Friedrich Adam Sertürner (1783-1841)*

Shown were a portrait of Sertürner and a picture of Cramer's pharmacy at Paderborn (Germany) in which the discoverer of morphine served as an apprentice.

Legend: The discovery of morphine by Sertürner was not only invaluable from a medical but also from a chemical point of view. By recognizing and stating the basic nature of this first alkaloid to be discovered, this apothecary became the pioneer of alkaloid chemistry.

b. *Joseph Pelletier (1788-1842) and Joseph Bienaimé Caventou (1795-1877)*

Shown were portraits of the two great French pharmacists and a picture of their monument at Paris.

Legend: This monument was erected in 1900 by international subscription to honor the discoverers of quinine, Pelletier and Caventou. Both of them were sons of pharmacists and pharmacists themselves and they contributed much to our knowledge of plant principles.

c. *Andreas Sigismund Margraff or Marggraf (1709-1782)*

Legend: German pharmacist and one of the greatest chemists of his time. Margraff differentiated between potassium and sodium compounds, identified magnesia, produced potassium cyanide and compounds of mercury and of silver with organic acids, introduced numerous reagents and dis-

covered sugar in different plants particularly in the sugar-beet. He reported this most important discovery in 1747.

In his investigations he used the microscope, the employment of which in chemistry became customary in consequence of his example.

Martin Heinrich Klaproth (1743-1817)

Legend: German pharmacist and one of the great chemists of his period.

Most of his discoveries he made in the small laboratory of his own pharmacy. He is considered the father of modern analytical chemistry and was the first to recognize with certainty the elementary character of uranium in 1786, zirconium in 1789, and cerium in 1803.

He found fluorine in bones, potassium in feldspar and was the first to separate barium and strontium.

d. Johann Friedrich Boettger (1685-1719)

Legend: German apothecary who, in co-operation with the Count Tschirnhaus, invented the process of production of European porcelain.

e. Friedlieb Ferdinand Runge (1794-1867)

Legend: German apothecary who discovered aniline, which he called Kyanol, in coal tar (1834) and simultaneously carbolic acid, rosolic acid, etc., in the same substance. This was the beginning of coal tar chemistry. It was likewise Runge who showed the way to produce dyestuffs with aniline as base. Furthermore, he discovered in 1821, simultaneously with Pelletier and Robiquet, caffeine.

f. Antoine-Jérôme Balard (1802-1876)

Legend: French apothecary who discovered bromine (from the Greek bromos = stench) in the salt brine of the Mediterranean in 1826. Of his further discoveries that of amyl nitrite (1834) is especially noteworthy.

g. Jean A. A. Parmentier (1737-1813)

Legend: French apothecary who introduced potatoes into France and popularized their use as food. He investigated milk and published a number of fundamental treatises on food chemistry.

h. Antoine Baumé (1728-1804)

Legend: Baumé belongs to the important French apothecary-chemists of the 18th century who simultaneously enriched pharmacy and chemistry. He introduced the hydrometer (Baumé's degrees), improved the process of distillation and gave in his *Elémens de Pharmacie Théorique et Pratique*, a comprehensive description of pharmaceutical apparatus and manipulation.

i. Carl Friedrich Mohr (1806-1879)

Legend: German apothecary and inventor of pharmaceutical and chemical apparatus and technic. Many pieces of auxiliary apparatus used in volumetric analysis were invented by him. His balance for the determination of specific gravity became a universally used instrument.

Among his many books his "*Lehrbuch der pharmazeutischen Technik*" is especially noteworthy. Upon it were based Redwood's Book on Practical Pharmacy, the first real pharmaceutical textbook in England, and an enlarged American edition, published by Procter, Jun., in the United States.

j. Hermann Hager (1816-1897)

Legend: Hager's comprehensive work on practical pharmacy, laid down especially in his "*Handbuch der Pharmaceutischen Praxis*," caused his contemporaries to call him "the father of modern German pharmacy." In 1859 he founded the "*Pharmaceutische Centralhalle für Deutschland*," a journal which under his leadership became one of the world's best known scientific pharmaceutical periodicals.

k. John Attfield (1835-1911)

Legend: Educator of the English pharmaceutical youth for about half a century, Attfield was considered "the father of modern English pharmacy." His manual on chemistry entitled "*Chemistry: General, Medical, and Pharmaceutical*" lived to see many English and, since 1870, some American editions.

*l. Two great pharmaceutical journalists**Johann Bartholomæus Trommsdorff (1770-1847)*

Legend: He belonged to the great European Continental pharmacists who helped to lay the ground for the rapid devel-

opment of science starting around 1800, and his text and reference books were very widely used.

His special importance lies in the fact that he was the first real pharmaceutical journalist, founding not only the first periodical devoted especially to pharmacy, but trying to write in an interesting way.

Hans Heger (1855-1940)

Legend: This Austrian pharmacist was one of the leading men in modern European pharmaceutical journalism and one of the most ardent believers in, and promoters of international pharmaceutical solidarity.

5. Carl Wilhelm Scheele (1742-1786)

A special display rack was devoted to the greatest chemist with whom pharmacy has presented the world: Carl Wilhelm Scheele. Shown were:

- a. The Scheele monument erected in Stockholm in reproductions taken from both sides of the statue;
- b. A picture of the pharmacy in Köping, the small Swedish town in which Scheele carried on his pharmaceutical business as well as his research work;
- c. A photo of the fixtures and drug containers of Scheele's pharmacy now preserved in the Nordisk Museum in Stockholm.

Legend: Scheele never left the pharmaceutical profession. Of the many discoveries made by him in the humble laboratory behind his store, may be mentioned chlorine and glycerin and a chain of organic acids, among them citric, lactic, oxalic and uric acid. Prior to 1773, that is at least a year before the date of Priestley's discovery, he found oxygen without, however, to draw the theoretical conclusions from his discovery.

6 The Pharmacists Who Made Pharmacognosy a Science

Exhibited were:

- a. A picture of Daniel Hanbury (1825-1910).
- b. A picture of F. A. Flückiger (1828-1894).
- c. A picture of Alexander Tschirch (1856-1939).

d. A picture showing a portrait of Tschirch surrounded by portraits of his best known students (1936). This picture was explained as follows:

The first of the portraits of former students of Tschirch on the left side is that of Prof. E. Fullerton Cook, Philadelphia College of Pharmacy.

It may be stated that the member of the Council of the American Institute of the History of Pharmacy and Treasurer of the American Pharmaceutical Association, Dr. Hugo H. Schaefer, Dean of the Brooklyn College of Pharmacy, was likewise a student of Tschirch and received his Doctor's degree at Bern.

e. Biographical articles on Hanbury and Flückiger (*The Pharmaceutical Era* 10, 1893) written by F. J. Wulling as part of a series of essays entitled "Eminent Men in Pharmacy."

f. An article written by Frederick B. Power on "The Influence and Development of Some of the Researches of Daniel Hanbury." (*The Pharmaceutical Journal and Pharmacist* 91, 1913.)

g. An article written by Edward Kremers bearing the title "Flueckeriana" (*Journ. Am. Pharm. Assoc.*, 19, 1930).

h. Illustrations showing the Hanbury and Flueckiger medals.

Legend: There is no doubt that pharmacognosy is the most specific and particular pharmaceutical science. The term pharmacognosy was first used in 1815 by Seydler and it was Th. W. Chr. Martius who since 1825 put deliberately under its sign the pharmaceutical part of the old medico-pharmaceutical discipline "materia medica."

The pharmacognosy, however, taught by Th. W. Chr. Martius (1796-1863) was purely descriptive or, to quote himself, "the discipline the task of which is to teach the examination of the drugs originating from the three realms of nature as to their origin, quality and purity and the recognition of confusion and adulteration." (Translated from the German original by this writer.)

It was the joint work of the English pharmacist, David

Hanbury, and the Swiss pharmacist, F. A. Flückiger, continued and systematized by the German pharmacist and author of the most comprehensive work on pharmacognosy published hitherto, Alexander Tschirch, which laid the basis for modern pharmacognosy or, to quote Tschirch, "the science the task of which is to recognize scientifically, to describe correctly, and to arrange according to general principles [i. e. within a systematic order] the drugs of vegetable and animal origin taking into consideration all their peculiarities with the exception of their physiological effect." (Translated from the German original by this writer.)

In the essays displayed, three American pharmacists, themselves well versed in the field concerned, Fr. B. Powers, Edward Kremers, and F. J. Wulling, pay tribute to the work of Hanbury and Flückiger. It may be mentioned that furthermore E. Kremers in the exhibited pamphlet as well as in a series of articles, published in the *New York Apotheker-Zeitung* (45, 1924; 49, 1928; 50, 1929) has described the events during the visit of Flückiger in the United States in 1894.

English, Swiss, German, and American pharmacists in close scientific co-operation and friendly human understanding, what a wonderful and encouraging fact just in a time like ours! It shows the way in which our gloomy present may be overcome and a better future may be achieved...

7. **Cinchona, History and Importance**

The center of this display rack was occupied by a large map, designed by Laura R. Kremers and showing in its main part the geographical distribution of malaria all over the world by means of shading the areas concerned.

The artist had made this map especially interesting by picturing the history of the drug in a series of pictorial narratives running along the frame of the map. The drawings show the effect of malaria, the famous (although fanciful) cure of the Countess of Chinchon by means of cinchona bark in 1638, an (imaginative) picture of Cardinal Lugo who was the most important promoter of the use of the bark in the 17th century, an (imaginative) picture of Pelletier and Cavantou discussing in an apothecary shop the discovery of

quinine, and finally sketches on the cultivation, collection and shipping of cinchona bark.

The following *legend* was a part of the map:

"Our early knowledge of cinchona is largely legendary. Cinchona bark became a famous remedy over night as it were, with the story of the alleged cure from intermittent fever of the Countess of Chinchon after whom cinchona was later named.

Its use in Europe was stimulated by the Jesuits and fought over by physicians. Since the discovery of quinine and the other alkaloids its place in the medical armamentarium has no longer been questioned.

The increased commerce in the bark from South America naturally led to the cultivation of the tree in various parts of the new as well as the old world. The most successful of these attempts have been in Java which now supplies not only the greater bulk of the crude drug, but one much richer in quinine than that obtained from the wild tree."

To both sides of the map were the pictures of the scientists exhibited, who during the 19th century have developed the scientific knowledge of cinchona bark and its contents (taken from Tschirch's publication "*Die Chinologen des XIX Jahrhunderts*" in *Schweizerische Wochenschrift für Chemie und Pharmacie* 1900 Nr. 44).

The display on cinchona was completed by one of the elaborate invitations to the "International Celebration and Exhibition three Hundredth Anniversary of the First Recognised Use of Cinchona by Europeans 1630-1930" sent out by "The Founder and Director of the Wellcome Historical Medical Museum" (bearing the handwritten address "*an den Herrn Redakteur, Pharmazeutische Zeitung*") and by a copy of the report on this celebration and exhibition published by the Wellcome Museum.

8. Illustrations Pertaining to the History of Pharmacy

There were shown:

- a. Portraits of Julius Berendes (1836-1914), Hermann Peters (1847-1920) and Hermann Schelenz (1848-1922).

Legend: The three German pharmacists, devoting a great part of their lives and work exclusively to the history of pharmacy, are to be considered as the great pioneers in the field of pharmaceutico-historical research and writing.

b. Portrait of Paul Dorveaux (1851-1938).

Legend: The physician Paul Dorveaux having been chief librarian of the "*Ecole Supérieure de Pharmacie de Paris*" for 38 years, was not only one of the founders and the permanent secretary of the "*Société d' Histoire de la Pharmacie*," but simultaneously one of the greatest French historians of pharmacy. The number of his historical articles, all of them distinguished by the utmost accuracy, amounts to about 300.

c. Portrait of Joseph Anton Haefliger (1873-).

Legend: J. A. Haefliger, practising pharmacist and professor of the history of pharmacy at Basel, has to be considered the greatest living authority as to pharmaceutical antiquities. He is the creator and curator of the excellently arranged pharmaceutico-historical museum at Basel ("*Schweizerische Sammlung für Historisches Apothekenwesen*"), author of numerous pharmaceutico-historical publications and initiated and conducted the world's first really international pharmaceutico-historical Congress held in 1934 at Basel.

d. A copy of the program of the international pharmaceutico-historical Congress held at Basel in 1934.

e. A picture showing the officers of the "*Gesellschaft für Geschichte der Pharmazie*" (Society for the History of Pharmacy) in 1931.

f. A picture showing the officers of the "*Fédération Pharmaceutique Internationale*" (international pharmaceutical federation) in 1928.

g. A picture showing the editors of the best known pharmaceutical journals all over the world (77) in 1931.

Bust:

The room of the Museum of the Wisconsin State Historical Society in which the exhibit was displayed is adorned with a bust of

Dante, Alighieri (1265-1321)

Legend: Although not being a pharmacist, the renowned author of the "*Divina Commedia*" became connected with pharmacy by joining the Florentine "*Arte Dei Medici E Speciale*," i. e., the guild of the physicians and apothecaries of Florence in 1296.

He did it for political reasons because every citizen of Florence had at that time to belong to one of the guilds which in their totality formed the governmental body of the republic, in order to be eligible for public office.

However, that he chose just this guild proves his sympathy for the professions concerned, and Dante is said to have been a frequent visitor of the Florentine pharmacies.

C. Table of the Books Exhibited

The arrangement within the table follows logical and not merely chronological principles.

The Development of the Pharmacopœias**Authors of Greco-Roman antiquity:**

1. *Scribonii Largi, . . . de compositione medicamentorum liber, . . . Io Ruellii Opera . . . Apud Andream Cratandrum, Basel 1529.*
2. *Celsus, De medicina.* With an English translation by W. G. Spencer. . . London—Cambridge, Massachusetts. 1935.
3. *Aurelii Cornelii Celsi de re medica libri octo . . . Accessit liber, Scribonii Largi, . . . industria Joannis Ruellii . . . Parisiis, Apud Christianum Vuelchel, Sub scuto Basilensi 1529.*
4. *Claudii Galeni Pergameni De Compositione pharmacorum localium Libri decem, Iano Cornario medico interprete . . . Lugduni, Apud Gulielmum Rouillium, Sub scuto Veneto 1549.*
5. *The Seven Books of Paulus Aeginata.* Translated from the Greek with a commentary . . . By Francis Adams, London, . . . Sydenham Society, 1844.

Medieval authors:

6. *L'Antidotaire Nicolas, deux traductions françaises de l'Antidotarium Nicolai; l'une du XIV^e siècle . . . l'autre du XV^e siècle . . . Publiées d'après les manuscrits français 25,327 et 14,827 de la Bibliothèque Nationale par le Dr. Paul Dorveaux . . . Paris 1896, H. Welten Editeur.*
7. *Eene Middelnederlandsche Vertaling van het Antidotarium Nicolai (Ms. 15624—15641, Kon. Bibl. Te Brussel) . . . W. S. van den Berg . . . Leiden 1917, E. J. Brill.*
8. *Nicolai Myrepsi Alexandrini Medicamentorum Opus . . . a Leonhar-*

to Fuchsio . . . e Græco in Latinum recens conversum . . . Basileæ, per Io Oporinum, 1549.

9. *Opera Divi Joannis Mesue (Venetia?) 1541.*

Official pharmacopœias:

10. *Nuovo Receptario Composito dal Famossissimo Chollegio Degli Eximii Doctori della Arte et Medicina della Inclita Cipta di Firenze . . . 1498 . . . Ad istatia dell Signori Consoli della universita dell spetiali . . . (photostatic copy).*
11. *Pharmacorum Omnim, Quæ Quidem In usu sunt, conficiendorum ratio. Vulgo Vocant Dispensatorium Pharmacopolarum . . . Authore Valerio Cordo . . . Norimbergæ apud Joh. Petreum (1546). Facsimile reprint, edited by Ludwig Winkler and published by Gesellschaft fuer Geschichte der Pharmazie, Mittenwald 1934.*
12. *Valerii Cordi Dispensatorium . . . a Petro Coudebergo, Pharmacopœo Antwerpiano . . . Antwerpiae, ex officina Christophori Plantini, 1568.*
13. *Enchiridion, Sive vt vulgo vocant dispensatorium, compositorum medicamentorum, pro Reipub. Augstburgensis Pharmacopœia (1564). Facsimile reprint, edited by Dr. Edward Kremers and published by The State Historical Society of Wisconsin, Madison 1927.*
14. *Pharmacopœia Sev Medicamentarium pro Rep. Augustana . . . Auguste Vindelicorum Sumptibus Georgii Vvilleri, Bibliopolæ, apud Michaëlem Mangerum, 1574.*
15. *Pharmacopœia Londinensis . . . Opera Medicorum Collegii Londinensis . . . Londini, excudebat Johannis Marriot, ad insigne Iridis albae in platea vulgo dicta Fleet-Street. 1618 (photostatic copy).*
16. *Pharmacopœia Londinensis . . . Diligenter revisa, denuo recuso, emendatior, auctior. Opera Medicorum Collegii Londinensis . . . London. Printed for John Marriot and are to be sold at his shop in Fleetstreets in St. Dunstons Churchyarde. 1618 (photostatic copy).*
17. *Pharmacopœia Londinensis . . . Londini. Typis G. Du-Gard impensis Stephani Bowter . . . 1650.*
18. *Pharmacopœia Collegii Regii Medicorum Edinburgensis, Edinburgi: Typis Jo Mosman & Sociorum; Impensis Joannis Paton, Georgii Stewart, & M. Joannis Gillan, Bibliopolarum. 1722.*
19. *The Dublin Pharmacopœia, last part of "The Pharmacopœias of the London, Edinburgh and Dublin Colleges, translated into English . . . by John Thompson, M. D.," Edinburgh 1815 . . . Alex Smellie, Printer.*
20. *British Pharmacopœia . . . London 1864, Spottiswoode & Co.*
21. *Codex, Pharmacopée Française . . . Paris. Béchet Jeune 1837.*
22. *Pharmacopœa Germanica, Berolini apud Rudolphum de Decker. 1872.*
23. *Farmacopea ufficiale del Regno D'Italia, Roma Tipografia delle Mantellate 1892.*

Universal (unofficial) pharmacopœia:

24. *Pharmacopée Universelle . . . Par Nicolas Lemery . . . A Paris chez Laurent D'Houry, 1698.*

Books on Herbs

Translations of and commentaries on the *Materia Medica* of Dioscorides:

1. *Pedanij Dioscorides Anazarbei de materia medica libri sex, Ioanne Ruellio Suessionense interprete . . . Parisiis apud Simonem Colinaeum 1537.*
2. *Pedacio Dioscorides Anazarbeo, Acerca de la materia medicinal . . . Traduzido de lengua Griega, en la vulgar Casteleana . . . por el Doctor Andres de Lagune . . . En Salamanca 1566, Mathias Gasi.*
3. *Pedacii Dioscoridis Anazarbei, de materia medica libri sex, innumeris locis ab Andrea Matthiolo emendati ac restituti. Lugduni. Apud Ioannem Frellonium 1554.*
4. *Les Commentaires De M. P. Andre Matthiole Medecin Sienois. Sur Les Six Livres De La Matiere Medicinale de Pedacius Dioscoride. Anazarbeen . . . Traduit de Latin en Francais par M. Antoine Du Pinet . . . A Lyon, chez Jean-Baptiste de Ville 1680.*
5. *The Greek herbal of Dioscorides; illustrated by a Byzantine A. D. 512. Englished by John Goodyer A. D. 1655. Edited by Robert T. Gunther, Oxford 1934.*
6. *Kräuterbuch des uralten und in aller Welt beruehmttesten Scribenten Pedacii Dioscoridis Anazarbexi . . . Erstlich durch Joannem Danzium von Ast . . . verteuht. Nunmehr aber von Petro Uffenbach . . . auffs neue uebersehen . . . Gedruckt zu Franckfurt am Mayn durch Johann Bringern in Verlegung Conrad Corthoys 1610.*
7. *New Kreuterbuch von den . . . Doctor Petro Andrea Matthiolo . . . Erstlich in Latein gestellt. Folgendts durch Georgium Handsch . . . verdeutscht . . . Gedruckt zu Prag durch Georgen Melantrich von Auentin 1563.*

Herbals of authors of the 16th, 17th and 18th centuries based on the authors' own observation:

8. *De Historia Stirpium . . . Leonhardo Fuchsio . . . autore . . . Basileæ In officina Isingriniana 1542.*
9. *Den Nieuwen Herbarius . . . Door . . . Leonhaert Fuchs. Ghedruet tot Basel by Michiel Isingrin (1555-?).*
10. *Kreutterbuch . . . durch Hieronymum Bock . . . gemehret . . . durch . . . Melchioren Sebizium. Gedruckt zu Strassburg durch Josiam Rihel 1577.*
11. *D. Jacobi Theodori Tabernæmontani Neu Vollkommen Kræter-Buch . . . Erstlichen durch Casparum Bauhinum . . . gebessert. Zum andern durch Hieronymum Bauhinum . . . vermehrt. Und nun zum dritten mal aufs fleissigst uebersehen. Basel. Gedruckt und verlegt bey Joh. Ludwig Koenig und Johann Brandmyllern. 1731.*
12. *The Herball or Generall Historie of Plantes. Gathered by John Gerarde . . . Enlarged by Thomas Johnson, Citizen and Apothecarye of London . . . Printed by Adam Islip Joice Norton and Richard Whitakers, London 1633.*

Handbook for the trade in drugs:

13. *Histoire Generale Des Drogues . . . Par le Sieur Pierre Pomet, Marchand Epicier et Drogiste. A Paris chez Jean-Baptiste Loyson 1694.*

Reproductions of manuscripts:

14. *Dioscurides Codex Anicæ Julianæ picturis illustratus, nunc Vindobonensis med. gr. I phototypice editus. Moderante Josepho de Karabacek . . præfati sunt Antonius de Premerstein, Carolus Wessely, Josephus Mantuani.* Lugduni Batavorum A. W. Sijthoff 1906.
15. *Miniaturen der lateinischen Galenos-Handschrift der Kgl. Oeffentlichen Bibliothek in Dresden Db 92-93 in phototypischer Reproduktion . . Einleitung und Beschreibung von E. C. van Leersum und W. Martin.* Leiden, A. W. Sijthoff's Uitgevers-Mij. 1910.

Twenty-Six First Volumes of European Pharmaceutical Journals and One Last One

Germany:

1. *Almanach oder Taschenbuch für Scheidekünstler und Apotheker auf das Jahr 1780,* Weimar bey Karl Ludolf Hoffmann (Yearbook).
2. *Berlinisches Jahrbuch der Pharmacie auf das Jahr 1795 . .* Berlin 1795 bei Ferdinand Oehmicke (Yearbook).
3. *Journal der Pharmacie für Aerzte und Apotheker von Johann Bartholmæ Trommsdorff,* Erster Band, Leipzig 1794, bey Siegfried Lebrecht Crusius.
4. *Repertorium für die Pharmacie. Angefangen von Dr. Adolph Ferdinand Gehlen. Fortgesetzt von Dr. Johann Andre Buchner.* Erster Band, Nuernberg, 1815, bei Johann Leonhard Schrag.
5. *Archiv des Apothekervereins im noerdlichen Teutschland . . herausgegeben von Dr. Rudolph Brandes . .* Erster Jahrgang. Erster Band, Schmalkalden, im Verlage der Th. G. Fr. Varnhagenschen Buchhandlung 1822.
6. *Magazin für die neuesten Erfahrungen im Gebiete der Pharmacie . . herausgegeben von Dr. Georg Friedrich Haenle.* Erster Jahrgang. Erster Band. Karlsruhe 1823, Verlag von Gottlieb Braun.
7. *Allgemeine pharmaceutische Zeitschrift . . herausgegeben von Dr. Willibald Artus.* Erstes Heft. Weimar 1843. Verlag und Druck von Bernhard Friedrich Voigt.
8. *Phamaceutische Centralhalle für Deutschland. Herausgegeben von Dr. Hermann Hager.* I. Jahrgang. 1859-60. Berlin. In Commission bei Julius Springer.
9. *Apotheker-Zeitung. Herausgegeben vom Deutschen Apothekerverein . .* Verantwortlicher Redakteur: P. Lohmann in Berlin. Erster Jahrgang 1886 . . C. Mueller's Buchdruckerei in Eberswalde.

France:

10. *Journal de la Société des Pharmaciens de Paris.* Tome I, Paris 1797.
11. *Bulletin de Pharmacie . .* Tome premier. A Paris, chez D. Colas, 1809.
12. *Journal de Pharmacie . .* Tome premier. A Paris, chez L. Colas Fils, 1815.
13. *Journal de Chimie Médicale, de Pharmacie et de Toxicologie . .* Tome premier. A Paris, chez Bechet Jeune, 1825.
14. *Répertoire de Pharmacie . .* Tome premier. Paris 1845 ("Au Bureau du Journal").

England:

15. *The Chemist*, Vol. I. London. Knight and Lacey, 1824.
16. *The Chemist; or Reporter of Chemical Discoveries and Improvements* . . Vol. I, London; R. Hastings 1840.
17. *The Pharmaceutical Journal and Transactions*. Vol. I. 1841—2. London: John Churchill 1842.
18. *The Annals of Chemistry and Practical Pharmacy*. Vol. I. London, Longman, Brown, Green and Longmans, 1843.
19. *The Pharmaceutical Times: A Journal of Chemistry, Applied to the Arts, Agriculture, and Manufacturers*. Vol. I. September 5, 1846 to February 20, 1847. London, J. Angerstein Carfrae.
20. *The Chemist and Druggist, A monthly trade circular*. Vol. I. 1859. London. James Firth.

Italy:

21. *Bulletino Dell'Associazione Farmaceutica Lombarda*. Vol. I. Milano, Typografia di Albertari Francesco. 1862.

Spain:

22. *Mensual Farmaceutico*, 15 de Junio de 1842, Burgos, Imprenta de Pascual Polo.

Holland:

23. *Tijdschrift voor Wetenschappelijke Pharmacie* . . geredigeerd door P. J. Haaxman, Apotheker to Rotterdam. Eerste Jaargang. Voorburg, A. M. Broedellet, 1849.

Denmark:

24. *Archiv for Pharmacie, redigeret af S. M. Trier, Apotheker i. Lyng bye* . . Kjobenhavn, C. A. Reitzels Forlag. 1845.

Austria:

25. *Zeitschrift des Allgemeinen Oesterreichischen Apotheker-Vereines*. I. Jahrgang, Wien 1863 ("Im Selbstverlage des Vereins").
26. *Pharmazeutische Monatshefte* . . Herausgegeben und geleitet von Dr. Hans Heger. Erster Jahrgang 1920. Wien.

Last Volume:

Pharmazeutische Zeitung, Zeitschrift für die wissenschaftlichen und praktischen Angelegenheiten des Deutschen Apothekers. 82. Jahrgang. 1937. Verlag von Julius Springer, Berlin.

The Development of European Text and Reference Books

A. Textbooks

Late medieval Italian author (15th century):

1. *Saladine De Asculo, Serenitatis Tarenti Physici Principalis Compendium Aromatariorum*. Dissertation von Leo Zimmerman, Leipzig 1919. Verlag von Johann Ambrosius Barth.

France:

2. *Joan Renodæi Med. Parisien, Institutionum Pharmaceuticarum Libri Quinque. Quibus accedunt de materia medica libri tres.* Paris Gulielmus et Dyonisius de la Noue, 1608.
3. *La Pharmacie Théorique . . . par N. Chesneau . . . Utile non seulement aux Apothicaires mais aussi aux Médecins . . .* Paris Frederic Leonard 1660.
4. *Éleméns de Pharmacie Théorique et Pratique . . . par M. Baumé, Maitre Apothicaire de Paris . . . seconde édition.* Paris 1769, chez Lacombe.
5. *Nouveau Traité de Pharmacie. Théorique et Pratique par E. Soubeiran, Paris, Crochard et Compie 1836.*

Germany:

6. *Lehrbuch der Apothekerkunst von Karl Gottfried Hagen . . . Dritte . . . Auflage.* Koenigsberg und Leipzig, Gottlieb Lebrecht Hartung 1786.
7. *Die Apothekerkunst in ihrem ganzen Umfange . . . von J. B. Trommsdorff.* Erfurt. Henningsche Buchhandlung 1805.

England:

8. *Pharmacopæia Officinalis et Extemporanea: Or, A Compleat English Dispensatory . . . by John Quincy . . . Printed for E. Bell . . . W. Taylor . . . and J. Osborn, London 1722.*

Spain:

9. *Filosofia Farmaceutica e La Farmacia . . . Da A. Luz El. Gregorio Banares.* Segunda Esicion. Madrid 1814. En la Imprenta Real.

B. Reference Books

1. *Pharmacopæia Medico-Chymica sive Thesaurus Pharmacologicus . . . Authore Joanne Schroederi, M. D. . . Printed at Frankfurt/Main by Joan Goerlin 1669.*
2. *Dictionnaire Pharmaceutique ou Apparat de Médecine, Pharmacie et Chymie . . . par M. de Meuve.* (2nd edition) Laurent D'Houry Paris 1689.
3. *Joannis Heinricus Jungken, Physici Francofurtensis, Lexicon Chymico-Pharmaceuticum . . .* Frankfurt/Main, Johannis Zieger, 1709.
4. *Johann Jacob Woyts, . . . Gazophylacium Medico-Physicum, oder Schatzkammer Medicinisch-und Natuerlicher Dinge . . .* (5th edition) Leipzig 1727, Friedrich Lanckischens Erben.
5. *Samuel Hahnemann . . . Apothekerlexikon.* Leipzig 1793. Siegfried Lebrecht Crusius.
6. *Allgemeines pharmaceutisch chemisches Woerterbuch . . . für Aerzte, Apotheker und Chemiker von J. B. Trommsdorff,* Erfurt 1805, Henningsche Buchhandlung. (See also Nr. 7 under A.)
7. *L'Officine ou Répertoire Général de Pharmacie Pratique . . . par Dorvault (loth edition).* Paris 1880, P. Asselin.
8. *Real-Encyclopædie der gesamten Pharmacie . . . herausgegeben von Geissler (later Thoms) and Moeller,* Wien und Leipzig 1886, Urban & Schwarzenberg.

The Evolution of an American Pharmaceutical Text

1. *Lehrbuch der pharmaceutischen Technik . . Dr. Friedrich Mohr . . Für Apotheker, Chemiker, chemische Fabrikanten, Aerzte und Medicinal-Beamte, Braunschweig 1847, Friedrich Vieweg und Sohn (309 cuts.)*
2. *Pharmaceutical Journal and Transactions, vol. VII, London 1848.* On page 143 of Nr. III, dated September 1, 1847, it was announced "that a work on Practical Pharmacy, the joint production of Dr. Mohr, a well known and eminent German Pharmacist, and Dr. Redwood, of the Pharmaceutical Society, is now in the press, and will shortly be published."
3. *Practical Pharmacy: The Arrangements, Apparatus, and Manipulations, of the Pharmaceutical Shop and Laboratory. By Francis (misprint, see under 1) Mohr, . . . and Theophilus Redwood . . London 1849, Taylor, Walton, and Maberly (400 cuts).*
4. The same title as under 3 inclusive of the misprint of the first name of Mohr with the following enlargement: "Edited with extensive additions by William Procter, Jr., Professor of Pharmacy in the Philadelphia College of Pharmacy." Philadelphia: Lea and Blanchard. 1849 (500 cuts).
5. *An Introduction to Practical Pharmacy: Designed as a Text-Book for the Student and as a Guide to the Physician and Pharmacist . . By Edward Parrish. Philadelphia 1856, Blanchard and Lea.*
6. *The Practice of Pharmacy: . . Intended as a Handbook for Pharmacists and Physicians and a Textbook for Students. By Joseph P. Remington. . Philadelphia 1886, J. B. Lippincott Company.*

The Formation of Modern American Pharmaceutical Education

Literature on Scientific Schooling and Research:

1. *Proceedings of the Organization and of the First and Second Annual Meetings of the American Conference of Pharmaceutical Faculties (1900/01).*
2. *The Pharmaceutical Syllabus, First Edition. Published by the New York State Board of Pharmacy, J. B. Lyon Company, Printers 1910.*
3. *Basic Material for a Pharmaceutical Curriculum. Prepared under the Direction of W. W. Charters, University of Pittsburgh, A. B. Lemon, University of Buffalo, Leon M. Monell, University of Buffalo. First edition. McGraw-Hill Book Company, Inc. New York 1927.*
4. *Annual Survey of Research in Pharmacy and Proceedings of National Conference on Pharmaceutical Research 1933-34. Edited by John C. Krantz, Jr., . . The John D. Lucas Printing Co. Baltimore, Md.*

Literature concerning the Passing of the State Board Examinations:

5. *National Institute of Pharmacy. The First Term Presenting a Series of Twelve Lectures on Pharmacy. . . 1890 By C. S. N. Hallberg . . Chicago: G. P. Engelhard & Company.*
6. *Answers to Questions Prescribed by Pharmaceutical State Boards by Robert B. Ludy, M. D. . . 3rd edition . . Edited by Heber W. Youngken, . . Philadelphia 1926, John Jos. McVey.*

The First Treatise on American Materia Medica**Spanish originals:**

1. *Dos Libros. El uno trata de todas las cosas que se traen de nuestras Indias Occidentales, que sirven al uso de medicina . . . por el Doctor Niculoso de Monardes medico de Sevilla . . 1565.* Sebastian Trugillo, Sevilla.
2. *Segunda Parte Del Libro de las cosas que se traen de nuestras Indias Occidentales, que sirven al uso de medicina . . . por el Doctor Monardes medico de Sevilla . . Alonso Escrivano Sevilla 1571.*
3. *Primera Y Segunda Y Tercera Parte De La Historia Medicinal De Las Cosas que se traen de nuestras Indias Occidentales que sirven en medicina . . . Por el Doctor Monardes medico de Sevilla . . Alonso Escrivano 1574.*

Translations into Latin:

4. *De Simplicibus Medicamentis ex Occidentali India Delatis, quorum in medicina usus est. Auctore D. Nicolao Monardis Hispalensi Medico; Interpretate Carolo Clusio, Atrebate . . . Christoph Plantin, Antwerp 1574.*
5. *Altera Editio, Antwerp 1579.*
6. *Quarta Editio, Antwerp 1593.*

Translations into Italian:

7. *Delle Cose Che Vengono, portate dall' Indie Occidentali pertinenti all uso della medicina. Raccolte, & trattate dal Dottor Nicolo Monardes, Medico in Siviglia, Parte Prima. Nonamente recata dalla Spagnola nella nostra lingua Italiana . . . Giordano Ziletti 1575.*
8. *Due Libri Dell' Historia Dei Semplici, Aromati, et Altre Cose; Che Vengono portate dall' Indie Orientali pertinenti all' uso della medicina. Di Don Garzia Dall' Horto, Medico Portughese; con alcune brevi annotatione di Carlo Clusio. Et due altri libri parimente di quelle che si portano dall' Indie Occidentali, di Nicolo Monardes . . Hora tutti tradotti dalle loro lingue nello nostra Italiana da M. Annibale Briganti . . Francescus Ziletti, Venetia 1581.*
9. *Another edition, printed by the heirs to Fr. Ziletti, Venice 1589.*

Translations into French:

10. *Histoire des Drogues Espiceries, et de Certains Médicaments Simples, qui naissent és Indes, tant Orientales que Occidentales, divisé en deux parts . . Le tout fidèlement translaté en nostre vulgaire François sur la traduction Latine de Clusius: Par Anthoine Colin Apoticaire . . de Lyon. Jean Pillehotte, Lyon 1602.*
11. *Second edition, Lyon 1619. Remarkable is the replacement of the words "és Indes, tant Orientales que Occidentales" in the title by "és Indes & en L'Amérique."*

Translation into English:

12. *Joyful Newes out of the Neue Founde Worlde written in Spanish by Nicholas Monardes physician of Seville and Englished by John Frampton merchant Anno 1577. With an introduction by Stephen Geselee, London: Constable and Co. Ltd.; New York: Alfred A. Knopf 1925.*

Translation into German:

13. *Die Schrift des Monardes ueber die Arzneimittel Amerikas nach der Lateinischen Uebersetzung des Clusius aus dem Jahre 1579. Uebersetzt und erläutert von Kurt Stuenzner.* Halle a. S. 1895.

Literature pertaining to the work of Monardes:

14. *Charles de l'Ecluse (Carolus Clusius), Nederlandsch Kruidkundige 1526-1609. Door Dr. F. W. T. Hunger.* S'Gravenhage. Martinus Nijhoff 1927. The title page of the first edition of Clusius' translation of the two first parts of the work of Monardes is shown on page 129 of the book.

15. Thesis of Richard Glenn Weiss on "Del Anime Y Copal," chapter I of the treatise of Monardes, Wisconsin 1924.

16. Thesis of Allen Gerard Meenk on "De La Tacamahaca," chapter II of the treatise of Monardes, Wisconsin 1926.

The Development of the United States Pharmacopœia

Documents pertaining to the medicinal supplies within the North American colonies:

1. Receipts to Cure Various Disorders, sent to Governor John Winthrop Sen., Massachusetts, by Dr. Stafford, London, in 1643. *The Badger Pharmacist* Nr. 15, April 1937. Madison, Wisc.
2. A Drug List of King Philip's War (1675). *The Badger Pharmacist* Nr. 25, February 1939, Madison, Wisc.
3. The Lititz Pharmacopœia (1778). *The Badger Pharmacist* Nrs. 22 to 25, June to Dec., 1938, Madison, Wisc.
4. Coste's Compendium Pharmacaceuticum (1780). *The Badger Pharmacist* Nrs. 27 to 30, Dec. 1940, Madison, Wisc.

Predecessors of the United States Pharmacopœia:

5. *The Pharmacopœia of the Massachusetts Medical Society*, Boston, E. & J. Larkin 1808.
6. *Pharmacopœia Nosocomii Neo-Eboracensis; or the Pharmacopœia of the New York Hospital*, New York, Collins & Co., 1816.

Circulars of the Committee of Revision of the U. S. P.:

7. Dr. Frederick B. Power's copy of the circulars of the Committee of Revision of the Pharmacopœia of the United States of America elected by the Decennial Convention of 1890.

The United States Pharmacopœias:

8. *The Pharmacopœia of the United States of America 1820.* By the authority of the medical societies and colleges, Boston 1820. Printed by Wells and Lilly. For Charles Ewer.
9. Second edition New York. "By the authority of 'the General Convention for the Formation of the American Pharmacopœia' held in 1830," New York S. Converse, 1830.
10. Second edition Philadelphia. "By authority of the National Medical Convention held at Washington, A. D. 1830." Philadelphia John Grigg, 1831.

11. Edition of 1842. "By authority of the National Medical Convention." Philadelphia, Grigg & Elliot.
12. Edition of 1851. "By authority of the National Medical Convention." Philadelphia, Lippincott, Grambo, & Co., successors to Grigg, Elliott, & Co.
13. Edition of 1863. "Fourth Decennial Revision. By authority of the National Convention for Revising the Pharmacopœia." Philadelphia, J. B. Lippincott & Co.
14. Edition of 1873. "Fifth Decennial Revision. By authority of the National Convention for Revising the Pharmacopœia." Philadelphia, J. B. Lippincott & Co.
15. Edition of 1882. "Sixth Decennial Revision. By authority of the National Convention for Revising the Pharmacopœia." New York William Wood & Company.
16. Edition of 1893. "Seventh Decennial Revision. By authority of the National Convention for Revising the Pharmacopœia . . . Official from January 1st, 1894. Published by the Committee of Revision. Philadelphia. Printers and Binders: J. B. Lippincott Company. Agents: P. Blakiston, Son & Company."
17. Edition of 1905. "Eighth Decennial Revision. By authority of the United States Pharmacopœial Convention. Published by the Board of Trustees. Official from September 1st, 1905. Philadelphia. Agents: P. Blakiston's Son & Company."
18. Edition of 1916. "Ninth Decennial Revision. By authority of the United States Pharmacopœial Convention . . Published by the Board of Trustees. Official from September 1st, 1916. Philadelphia. Agents: P. Blakiston's Son & Company."
19. Edition of 1925. "Tenth Decennial Revision (U. S. P. X). By authority of the United States Pharmacopœial Convention . . Published by the Board of Trustees. Official from January 1st, 1926. Agent: J. B. Lippincott Company, Philadelphia, Pa."
20. Edition of 1935. "Eleventh Decennial Revision (U. S. P. XI). By authority of the United States Pharmacopœial Convention . . Published by the Board of Trustees. Official from June 1st, 1936. Agent: Mack Printing Co., Easton, Pa."

Translations of the United States Pharmacopœia:

21. Chinese edition, 1923. China agents: Chun Hwa Book Co., Shanghai.
22. *Farmacopea De Los Estados Unidos De America Octava Revision Decenal . . .* Agentes: American Druggist Publishing Co. . . Nueva York, N. Y.

Commentaries to the United States Pharmacopœia:

23. *The American Dispensatory . . .* By John Redman Coxe, M. D. Philadelphia: Printed by A. Bartram for Thomas Dobson. 1806.
24. *The American New Dispensatory . . .* By James Thacher . . . Boston T. B. Watt and Co., 1810.
25. *The Dispensatory of the United States.* By George B. Wood . . . and Franklin Bache . . . Second edition, Philadelphia, Grigg & Elliot, 1834.

26. *The National Dispensatory . . . By Alfred Stillé . . and John Maisch . .* Philadelphia: Henry C. Lea, 1879.
27. *A Companion to the United States Pharmacopæia . . By Oscar Oldberg . . and Otto A. Wall . .* New York, William Wood & Company 1884.

Pharmaceutical Journalism in America

Journals published by wholesalers or manufacturers:

a. Commercial type:

1. *Meyer Brothers Druggist*, published monthly in the interest of the entire trade, St. Louis, Mo. vol. XVI (1895).
2. *Drug Topics*, a monthly magazine for chemists, pharmacists and druggists. McKesson & Robbins, New York, vol. XXX (1915).

b. Scientific type:

3. *The Journal of Materia Medica and Pharmaceutical Formulary . .* Conducted by Joseph Bates, M. D., and H. A. Tilden. Vol. I,—New Series, New Lebanon, New York 1858, Tilden & Company.
4. *An Ephemeris of Materia Medica, Pharmacy, Therapeutics and Collateral Information*, vol. I (1882 and 1883). By Edward R. Squibb, M. D., Edward H. Squibb, S. B., M. D., Charles F. Squibb, A. B., Brooklyn, N. Y.

c. Professional and commercial type:

5. *Merck's Market Report*. A pharmaceutical journal. An independent semi-monthly magazine devoted to the professional and commercial interests of the druggist. Editor: Theodore Weicker. Vol. IV. 1895. Published by Merck & Co., New York.

Journals published by or within the frame of Colleges of Pharmacy:

6. *Journal of the Philadelphia College of Pharmacy*, vol. I (1825-27). Later on the issues concerned have been called "preliminary" issues.
7. *Journal of the Philadelphia College of Pharmacy*, vol. I, Philadelphia 1830, J. Grigg.
8. *The American Journal of Pharmacy*, published by authority of the Philadelphia College of Pharmacy . . . New Series—vol. I, Philadelphia April 1835-January 1836, inclusive.
9. *Journal and Transactions of the Maryland College of Pharmacy*, published by authority of the College . . vol. I, Baltimore 1859-60.
10. *The Pharmacist*, published by the Chicago College of Pharmacy, vol. I . . Chicago 1869.
11. *The Apothecary*, published quarterly by the School of Pharmacy of Northwestern University, Chicago. Volumes 1 to 3 (August, 1891 to April, 1894).

Journalizing of association proceedings:

12. *Minutes of the Convention of Pharmacists and Druggists held in the City of New York October 15, 1851*. Philadelphia 1865, Merrhew & Son, Printers.
13. *Proceedings of the American Pharmaceutical Association at the annual meeting held in Boston August 24th, 25th and 26th, 1853*. Pub-

lished by Direction of the Association. Philadelphia 1853, Merrihew and Thompson, Printers.

14. *The Journal of the American Pharmaceutical Association*. Vol. I. January to December 1912.
15. *N. A. R. D. Notes*. Published weekly by the National Association of Retail Druggists . . . vol. I, Chicago, III, 1902
16. *The Journal of the National Association of Retail Druggists* (formerly N. A. R. D. Notes), vol. XVII (October 9th, 1913 to April 2nd, 1914) Chicago, Ill. 1914. (The change from the "Notes" to the "Journal" was started with the issue of June 19, 1913, i. e. vol. XVI, Nr. 11.)
17. *The American Drug Clerks Journal*. A monthly journal of pharmacy and collateral branches. Vol. I, 1887. American Drug Clerks Publishing Co., Chicago, Ill.

Independent Journals of national scope:

18. *American Druggists' Circular and Chemical Gazette*. A practical journal of chemistry as applied to pharmacy, arts and sciences, and general business organ for druggists, chemists, and apothecaries. Vol. I (1857). New York, Bridgman & Co., Apothecaries and Druggists.
19. *New Remedies*. A quarterly retrospect of therapeutics, pharmacy and allied subjects. New York 1872, William Wood & Co.
20. *American Druggist*. An illustrated monthly journal of pharmacy, chemistry and *materia medica*. Vol. XV. New York 1886, William Wood & Company. (The American Druggist was the continuation of the "New Remedies," listed under 19.)
21. *The Pharmaceutical Era*. A monthly exponent of pharmaceutical science and practice. Vol. I. 1887 . . . Detroit, D O. Haynes & Company
22. *Pharmaceutische Rundschau unl Zeitung für die wissenschaftlichen und gewerblichen Interessen der Pharmacie und verwandten Berufs-und Geschäftszweige in den Vereinigten Staaten*. Herausgegeben von Dr. Fr. Hoffmann. Band I. New York 1883. Im Selbstverlag des Herausgebers.
23. *Pharmaceutical Review* (formerly *Pharmaceutische Rundschau*) Edited by Dr. Frederick Hoffmann and Dr. Edward Kremers . . . vol. XIV. Milwaukee 1896, Pharmaceutical Review Publishing Company.

Independent journals with geographically limited circulation:

24. *The Pacific Pharmacist* . . . vol. III (1909-1910), San Francisco, published by the Searby Memorial Fund.
25. *The Canadian Druggist* . . . vol. XI . . 1899. W. J. Dyas, Canada.
26. *La Farmacia*. Periodico de la Sociedad Farmaceutica Mexicana. Tomo I, Mexico 1890. Imprenta del "Circulo Catolico."

**Pharmaceutical History in the Individual States of the U. S. A.
and the Philippines**

Proceedings of State Pharmaceutical Associations:

1. *Proceedings of the second annual session of the Alabama Pharma-*

ceutical Association . . Selma 1883, The Times Job Print.

- 2. *Proceedings of the Connecticut Pharmaceutical Association at the fourth annual meeting . . .* Waterbury, Conn. 1880, F. P. Steele.
- 3. *Proceedings of the Georgia Pharmaceutical Association at the tenth annual meeting, Atlanta 1885.*
- 4. *Proceedings of the Convention of Druggists and of the first meeting of the Illinois Pharmaceutical Association . . .* 1880, Chicago 1881, Chandler & Engelhard.
- 5. *Proceedings of the fourteenth annual convention of the Indiana Pharmaceutical Association . . .* Indianapolis 1895, Word-Weaver Printing Co.
- 6. *Kansas Pharmaceutical Association, twenty-first annual meeting . . .* 1900.
- 7. *Report of the initiatory Proceedings of the Louisiana State Pharmaceutical Association . . .* New Orleans 1882, Times Democrat Print.
- 8. *Proceedings of the Massachusetts Pharmaceutical Association, first annual meeting . . .* Lynn 1822, Thos. P. Nichols, Printer.
- 9. *Proceedings of the Maryland State Pharmaceutical Association at its inaugural meeting 1883,* Baltimore, Lantz & Arnold.
- 10. *Proceedings of the Convention of Druggists held in Utica, May 21, 1879; Proceedings of the New York State Pharmaceutical Association, first annual meeting, Utica, May 21st and 22nd, 1879,* New York 1879, I. P. Averell.
- 11. *Proceedings of the Pennsylvania Pharmaceutical Association . . .* Harrisburg, Pa. 1879, Lane S. Hart.
- 12. *Proceedings of the Wisconsin Pharmaceutical Association, first annual meeting held in Madison, July 14th and 15th, 1880,* Janesville, Daily Recorder Print.
- 13. *Proceedings (Memorias) of the (de la) first Philippine Pharmaceutical Convention (Primera Convencion Farmaceutica de Filipinas) celebrated under the auspices (celebrado bajo auspicios) of the (de la) "Philippine Pharmaceutical Association" Incorporated (Incorporado), held at Manila . . . 1921.*

Association Officers Directory:

- 14. *Wisconsin Pharmaceutical Officers Directory (1880-1930)* compiled 1930 by Edwin J. Boberg. Typewritten manuscript.

Pamphlets on local pharmaceutical history:

- 15. *The Badger Pharmacist*, published in the interest of pharmacy in Wisconsin by the students of the School of Pharmacy of the State University, Madison, Wisconsin, 1900.
- 16. Twelve copies of *The Badger Pharmacist*, "published by the Wisconsin Chapter of Rho Chi" from 1930-1938 dealing with local Wisconsin pharmaceutical history.
- 17. Conrado F. Asenjo: *The St. Thomas Apothecary Hall at Charlotte Amalia (the capital of the United States Virgin Islands).* Reprint from *Journ. Am. Pharm. Assoc. .. Pract. Pharm. Edit.* 1: 272, 1940.

Practical Pharmacy

Manuals or Catalogues of Colleges of Pharmacy:

1. *The Druggist's Manual.* Being a price current of drugs, medicines, paints, dye-stuffs, glass, patent medicines, etc. with Latin and English synonyms, a German, French, and Spanish catalogue of drugs, tables of specific gravities, etc., etc. And a variety of useful matter compiled by direction of the Philadelphia College of Pharmacy. Philadelphia. Printed for the College by Solomon W. Conrad, 1826.
2. *Catalogue of the Materia Medica and of the Pharmaceutical Preparations with the uniform prices of the Mass. College of Pharmacy.* Boston 1828 (photostatic reprint).

Catalogues of Druggists or Apothecaries:

3. *Catalogue of Drugs and Medicines, Instruments and Utensils, Dye-Stuffs, Groceries, and Painters' Colours, imported, prepared and sold, by Smith & Bartlett, at their druggists-store and apothecaries shop, no. 61 Cornhill, Boston . . . 1795* (photostatic reprint).
4. *Catalogue of the Materia Medica and of Pharmaceutical Preparations . . . for sale by Charles White, No. 1, Marlboro-Street . . . Boston 1817* (photostatic reprint).
5. *Medicine Chests of all Kinds, with directions suitable to their contents are carefully put up by Daniel Henchman . . . Boston 1825* (photostatic reprint).

Anniversary Publications Containing Historical Surveys:

6. *One Hundred Years of Business Life 1794-1894*, W. H. Schieffelin & Co., New York.
7. *One Hundred Years. Being a brief chronicle of an institution of science*, Detroit 1919, Michigan Drug Company.
8. *Fifty Years, commemorating the fiftieth anniversary of the founding of Lehn & Fink, Inc.*, New York 1924.
9. *A History of the National Wholesale Druggists' Association from its organization to 1924. Half a century of constructive service*, New York 1924.

Publications of Associations Concerning Business Conduct:

10. *The Professional Pharmacy, an analysis of prescription department activities. Part of the National Drug Store Survey, second edition*. By Frank A. Delgado. American Pharmaceutical Association, Oct. 1935.
11. *Distribution through Drug Channels in the 84 Wholesale Trading Areas*. Published by the National Wholesale Druggists' Association, New York 1935.
12. *Fair Trade and the Retail Drug Store . . . by H. J. Ostlund and C. R. Vickland*. Published by the Druggists' Research Bureau, 1940.

Publications of Manufacturing Concerns Promoting Research and Professional Pharmacy:

13. *Lilly Research Laboratories. Dedication, Indianapolis, Indiana 1934*.

14. *Hand Book of Pharmacy and Therapeutics Lilly*, sixth edition, Eli Lilly & Company, Indianapolis, Indiana 1919.
15. *Pharmacist's Reference*, Eli Lilly and Company, Indianapolis, Indiana 1939.
16. *Merck Research Laboratory Rahway, New Jersey, 1933*. (Dedication.)
17. *Chemical Reagents . . .* Authorized translation of *Prüfung der Chemischen Reagenzien etc. . .* (second edition) von E. Merck by Henry Schenck . . . Merck & Co., New York 1914.

Books on Drug Store Practice:

18. *Shall Pharmacists Become Tradesmen? . . . By George J. Seabury*. Published by the author. New York 1899.
19. *A Treatise on Commercial Pharmacy . . . By D. Chas. O'Connor*, 3rd edition, Philadelphia . . . J. B. Lippincott Company 1925.
20. *Drug Store Business Methods . . . By Charles W. Pearson . . . Lea & Febiger*, Philadelphia and New York 1926.
21. *Retail Selling in the Drugstore by L. G. Heyner . . . The Superior Printing and Lithographing Co.*, Akron, Ohio 1931.
22. *The Marketing of Drug Products*. By Paul C. Olsen . . . Harper & Brothers . . New York and London 1940.

The Biography of an Organizer:

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A Commencement Address*

ROBERT P. FISCHELIS

Secretary, American Pharmaceutical Association

Mr. President, Members of the Board of Trustees, Faculty, Alumni and Graduating Classes of the Philadelphia College of Pharmacy and Science, Honored Guests, Ladies and Gentlemen:

Custom decrees that before a group of young men and women shall be finally released from the protective custody of a faculty which has endeavored to mold them into useful and competent members of society, they must be subjected to what someone has termed the "final affliction," namely, a Commencement Address.

When the graduation exercises happen to fall on a night near the end of July in hot and humid Philadelphia, it would

* Delivered at the 1945 Commencement of the Philadelphia College of Pharmacy and Science.

seem that the distinction of being selected to deliver the commencement address should carry with it a mandate to make this ordeal as swift and merciful as possible for all concerned.

I take it that this audience would readily give unanimous consent to such a mandate and I shall proceed accordingly. You will therefore pardon me if I do not refer at length to the splendid manner in which the faculty of this venerable institution has discharged its duty toward these newly created Bachelors of Science in Chemistry, Pharmacy, Biology and Bacteriology. Nor will you take it amiss, I hope, if I fail to dwell for long upon the sacrifices which many of the parents and relatives of these graduates may have made in order to enable them to complete this portion of their education and training for a useful career. We take it for granted that there is due appreciation for all of this on the part of the beneficiaries of the education which this Institution, now in the 125th year of its service to pharmacy and to humanity, has made possible, even in these war years. And let me point out in passing that while students of this college and their sponsors may have, at times, found it difficult to meet tuition fees and other expenses, the president and trustees of this Institution have had no easy task in raising the necessary funds to make up the deficit between the income from tuition fees and the actual cost of the education supplied. Such is the task of independent college administrators everywhere today but few have met the necessities of the hour so well as President Griffith with the help of his faculty, alumni and trustees.

With these brief acknowledgments to the other parties at interest in tonight's exercises I should like now to address the balance of my remarks to you, Graduates of 1945, who are about to part company with the scene and system of your undergraduate education. You are being launched into the great, busy, war-torn and generally upset world where most of you will have to learn to rely more largely upon your own resources or fall by the wayside.

Tonight you are the final result of a series of experiments. For 32 months or more you have been exposed to a variety of teaching and testing by a corps of experts including masters of the physical, biological and social sciences, the humanities and the techniques of pharmacy, chemistry, bacteriology and other skills and disciplines.

You are some kind of a finished product. How good or how bad, time alone will tell.

It will not be very long before you will be undergoing the world's customary tests of your fitness to survive. And the things that will count, the things that will determine your ultimate place among your fellow men, include not only your inherent ability and characteristics, but also your environment, your social contacts, your educational background, your diligence, intelligence, application to the duties and tasks assigned, and, above all, the amount of hard work you are willing to undertake to carve out a career.

Regardless of the specialty for which you have been in training there is much unfinished business that awaits your attention. Neither the problems of the world at large nor of the more restricted scientific world in which you will operate have all been solved, and many of them will still remain unsolved long after you have left this world behind, for science is indeed the "endless frontier."

Franklin D. Roosevelt wrote as late as last November that "new frontiers of the mind are before us, and if they are pioneered with the same vision, boldness, and drive with which we have waged this war we can create a fuller and more fruitful employment and a fuller and more fruitful life."

You are fortunate in having selected as your alma mater an institution whose administrators believe that professional men and women have obligations as citizens as well as scientists. It is not only your duty to make a contribution to the welfare of humanity through unselfish service as pharmacists, chemists, biologists and bacteriologists, and in the field of medical care, or elsewhere, but it is also your duty to apply your trained intellect and your social conscience to the molding of a better world.

No doubt your teachers and special lecturers have acquainted you fully with the opportunities for service that lie ahead in the specialized fields for which you have been trained. I can only add that you are completing your training at a most propitious time for quick absorption into industry, teaching, research or further study if these are your objectives. However, I would caution you that the mere completion of an undergraduate course in some specialty and being absorbed

into gainful employment is only a part of the true objective of the educated man or woman, although it may be an immediate necessity. It is unfortunate that many who are trained for the sciences and professions become so absorbed in their immediate objectives that they never acquire an understanding of their relationship to the world at large. Let us hope that you will not fall into the habit of bounding your horizons by high walls of selfish interest.

You are graduating at a time when the espousal of isolationism has ceased to be a virtue. We have learned by bitter experience and the supreme sacrifice of too many promising young men that we can no longer hope to live unto ourselves alone. And what is more, we have lived to see the day when from every corner of the earth there comes to us the demand for world leadership. This is not an abstract challenge. It is a series of specific calls for leadership in world diplomacy, in world finance, in world commerce, in world-wide scientific research, and in a world-wide war against disease and all of its disastrous consequences.

The challenge comes then directly to you as a member of one of the professions dealing with the public health and welfare and as a man or woman with a college education.

What is it that you personally can bring to these tasks that the world is leaving on our doorstep?

In the first place you can bring to the solution of any problem the contribution of a disciplined mind. The undisciplined mind holds and acts upon opinion. The disciplined mind is open and constantly seeks the truth. The undisciplined mind acts often unintelligently upon what "they say." The disciplined mind inquires, "What are the facts?" It is of course much easier to avoid the search for facts than to dig them out. So often they prove that much of what we claim to know just is not so, and that is sometimes disappointing. I implore you to refuse to accept hearsay for fact; to insist upon proof of statements that are open to reasonable doubt, before you determine to make them a part of your knowledge of any subject to be passed on to others.

Unfortunately there has crept into our political system a technic commonly referred to either as "smearing" or "white-washing," depending upon the objective. It reaches its high-

est state of development in our national elections, but it has been introduced into controversies of all kinds in our national life including the political aspects of scientific societies, and professional and educational organizations and institutions. It is frequently carried on by professional publicity experts or public relations counsel who conduct their campaigns under high-sounding titles such as institutes, research committees and whatnot. We know the product as propaganda, although we do not always recognize it as such.

One of the tests of an educated person today is the extent of his or her ability to distinguish between inspired propaganda and the dissemination of factual information. Right now in the field of medical care there is much circulation of misleading information which is given a factual flavor by the employment of statistics having little or no relation to the issues involved. It is well for those who are engaged in activities closely related to the practice of medicine to keep themselves especially well informed of the facts that are being developed by the researches of the American Medical Association, the Social Security Board and committees of Congress which have unequalled access to information from all available sources.

In a democracy we must have free choice of leadership and freedom of expression but the disciplined minds will insist that we carefully distinguish between facts and opinions. Attempts to predicate world leadership or leadership in a profession or in our own communities upon opinion leads directly to the kind of thing we have been trying to exterminate since 1941. As educated men and women you will want to insist that your representatives in the government, your professional societies and you and your coworkers base all actions involving matters of policy upon well established or properly authenticated facts.

In the second place you can help to bring to the solution of world problems the sound, ethical concepts that reach their fullest expression in the practice of the healing arts. The institution whose degree you have received today is essentially a training school for those who wish to devote their lives to certain services which are indispensable to the practice of medicine. Pharmacists, chemists, biologists, bacteriologists and other practitioners of professions closely related to the

practice of medicine do not initiate medical care. That is the function of the doctor of medicine. He is called upon by the patient to diagnose and prescribe for him. But in both functions the physician requires the assistance of highly trained specialists. You represent an important group of such specialists. You therefore share the physician's responsibility to the patient, for he depends upon your laboratory findings to aid him in making a correct diagnosis, and upon your compounding and dispensing of the proper remedy for effecting relief or cure. Furthermore, he depends upon researches in chemistry, bacteriology, biology and pharmacy for the development of new remedies and new diagnostic tests.

Traditionally the medical profession has never withheld its services from anyone requiring it. You are bound by the same high concept of duty and humanitarianism which governs the medical doctor.

There are codes of ethics among business men but they deal largely with correct rules of conduct in commerce and trade. In medicine we deal not alone with commodities, we deal principally with human beings and actually with the lives of these human beings. That is a relationship which is not generally appreciated in the market place. It calls for more than simple honesty and fair dealing. It calls for constant study and training to remain abreast of the latest developments in a field which is constantly new. Actually, from the time an individual enters any phase of the practice of medicine it becomes his principal objective to put himself out of business, for the final goal of physicians and their co-workers is to eradicate disease, and once that has been accomplished, physicians, pharmacists, bacteriologists and related scientists will hardly be needed.

With such a background of unselfish devotion to the service of mankind your outlook upon the problems of the post-war world is apt to be more liberal, more humane and much more sympathetic than that of the ordinary man toward adequate control over the forces which have used scientific discoveries and inventions to destroy rather than to benefit human beings.

In one of her recent columns Dorothy Thompson pointed out that it is obvious that a world organization to prevent war

must devise some means for international control of scientific formulas. She indicated that although the worst horrors with which Germany threatened the world came out of scientific laboratories, their inventors would probably not be treated as war criminals. On the contrary there is quiet competition in each country to win their services. In discovering the secrets of the universe, these scientists have apparently felt no responsibility for the purpose to which they were put. Of the 100 scientists rounded up by the United States, who, according to Miss Thompson, were working on rocket propulsion alone, most expressed themselves as eager to carry on their experiments in England and America for either war or peace use.

The greatest menace to our world, Miss Thompson continues, is the decline of ethics based on humanism and religious inhibitions, and the divorce of science, technology and economics from humanistic principles and emotions.

I believe the union between the medical sciences and humanistic principles and emotions has not been impaired to any considerable degree as a result of the war. Certainly there is little evidence of any callous disregard of the consequences of a rupture in this relationship. Here, then, we may have a starting point for the application of ethical and humanitarian principles to the control of new discoveries in the interest of the preservation rather than the destruction of mankind. You can help to bring to the discussion and solution of this serious problem the viewpoint of the scientist who deals day in and day out with the problems of medical care.

Finally, there falls upon you as members of one of the professions, dealing with the public health, the obligation to be a keen observer, a good recorder and a well informed disseminator of information in your field. Your basic training has now been acquired. You are ready to accumulate the experience in your field which will make your services increasingly valuable. You must remain mentally alert so that you can master the ever-increasing accumulation of new facts in your field. You must learn to carefully weigh conflicting evidence for there will be more and more people depending upon you for sound judgment on matters which they know little or nothing about and on which they will consider you to be an expert. The power to observe and the diligence to record observations are of the essence of scientific progress.

If you work with the microscope or with the test tube it is vitally important that you note and record the unusual for you may become the discoverer of something as important to humanity as Penicillin.

If you engage in the practice of pharmacy, keen observation of the health needs of your community will soon mark you as one of its greatest assets. Our health departments and the general public have greater need today of a conscientious and well-informed pharmacist than ever before. With the many conflicting claims of usefulness and specific value of competing brands of medicines coming to the attention of the public by way of the radio, newspapers and magazines, people must turn to someone with sufficient training and experience for unbiased information. Logically the retail pharmacist is that person.

The war against disease and premature death will continue long after the last shot has been fired in the Far East and our armed forces have returned to the pursuits of peace. It is a never-ending war and you have enlisted for the duration. So you will march from now on in the army which has been recruited and trained to serve humanity in the quest for better health, better living conditions and longer life.

May I express the wish that wherever you may be called and to whatever task you may set your hand, you will have the good fortune to reap a full measure of success and inner satisfaction.

An Alumni Address*

GEORGE D. BEAL

The Mellon Institute for Industrial Research

I wish to thank the Alumni Association for inviting me to speak to them and to the young people soon to become members of the Association. I shall not try to tell you which of the classes graduated from P. C. P. is the best. Being a mem-

*Delivered at the annual alumni banquet, College of Pharmacy, University of Pittsburgh, May 23, 1945.

ber of a parallel group, I am entitled to my private ideas, but we need have no argument here.

Your teachers may have prized some classes more highly than others as students. Some classes have contributed more to one branch of the profession of pharmacy than have others. You have had in the various classes legislators, bankers, wholesalers, professors, and a whole host of those who are just plain "Doc". To each one of you I am sure that your own class is, and ought to be, the best. There are many things that will recall your class to you. An odor, a certain steamboat whistle, the sound of a voice, some figure passing down the street. Many things happened to your class, and as you learned from the faculty, you learned also from the daily associations, from all the little things that happened in class. Be proud of your class and of your school. Your class is proud of you. The school is proud of you. Your strength is in the college, and the strength of the college lies in you.

Since the college has a stake in you, and you have a stake in pharmacy, I want to talk for just a few minutes about a subject that, strangely enough, is distasteful to many people. I refer to the status of pharmacy as a PROFESSION. Much has been written and spoken on this subject by way of books, papers, addresses, and editorials, until it is small wonder that many are bored. But year after year more critical surveys are planned, partially carried out, and leaders of pharmacy are asked to give their advice and direction to these programs. If the question arose only occasionally, it could come from some disgruntled, congenitally misplaced person. But with so much discussion, so perennially coming forth, there may be some underlying reason. As for our own possible resentment that the question has been raised, let me suggest this. When told that his nose is dirty, the even-tempered man looks in the glass, only the hot-tempered wax indignant at the suggestion.

The national associations have long had committees at work studying the professional status of pharmacists. They have given particular attention to their status in the government services, in civil service, the health services, and in the armed forces. In many places they have found a tendency of thought towards a sub-professional classification. We used

all the pressure we could bring to bear on the Congress, and came out with a commissioned Pharmacy Corps. But the Surgeon General transferred to the Corps certain members of the Medical Administrative Corps. The Army placed drafted prescription clerks in the infantry, and selected, apparently by lottery, miscellaneous draftees to become ninety-day wonders after a quick cram course, and even suggests that these persons might be entitled to post-war registration as pharmacists.

A medical student who has completed his interneship and passed his state board automatically becomes a first lieutenant. A graduate nurse becomes a second lieutenant. The dentist and the veterinarian both become gentlemen by virtue of a commission, but a 35 year old prescriptionist on whose shoulders rests the health of a neighborhood must cross the street or go around the block whenever he passes the office of his draft board.

People say, "There ought to be a law," or "why doesn't Congress do something," or "what's the matter with the A. Ph. A?" or "the N. A. R. D.?" Well, here is what happens. A good many members of Congress appreciate professional service of any kind. Some of them were trained as pharmacists or were errand boys for pharmacists who tried to make something out of their profession. They staunchly support our bills, aid in drafting them, and use all of their parliamentary skill in steering the bills through committees. They take us to call on other congressional leaders and argue that our professional ideals should be recognized. These other congressional leaders take us gently by the arm, lead us to the window, and point out a store-room across the street. Across the front is a three panel sign, "Cut Rate Drugs: Boola-Boola: Prescriptions Carefully Compounded." I do not have any particular resentment in this matter against the beverage or ice cream manufacturers who have provided these signs. Their advertising departments had a fine idea as far as their purposes were concerned, and promoted it well, these days with a good bit of artistry. I doubt if it ever occurred to them that they might be doing us a disservice. And we, well, I suppose it was just another "deal," over-looking the incongruity between price cutting and skillful professional service.

Professional men and women must have a rent and tax-paying occupation in addition to those functions that fully call upon their carefully acquired knowledge and experience. A law graduate starts as a law clerk doing the menial tasks in a law office and often pays for the privilege of drawing conveyances. The young engineer after four years of a brain twisting mathematical course begins as a draftsman, or as chainman with a railroad surveying gang. These more or less rudimentary things, moreover, are not for neophytes alone in any of the professions. It is the routine of the things that I have mentioned, the business papers, the surveys, the detailing of construction, the routine analytical procedures of the laboratory that carry the overhead and hold the organization together so that it can do the striking things when called upon. These jobs are the retail work of these professions. They are done, however, in the same atmosphere, the same manner, and with the same equipment, if such be required, as are those functions that go with the reputation of the specialist.

One thing that distinguishes these persons in their occupation, whether it be attention to some matter of routine or some work that requires their highest skill, is the manner in which it is approached. That is what we call the professional attitude, and which is nothing more than a state of mind. If a nurse, or a physician's wife habitually addresses a man or speaks of him as "Doctor", it is only partially because of tradition, but largely because she realizes that he carries a serious responsibility, and respects it. The same thoughts might be expressed regarding the etiquette of court procedures, particularly the formality between the bar and the bench in open session. The law governs us as much through our respect for it as through its power over us. Therefore court tradition is largely for the purpose of maintaining our respect for the law.

The art of pharmacy, as practiced by the retailer, who is its backbone, has undergone a great revolution in something more than a half-century. But pharmacy is not alone in this. Large scale manufacturing can surround the preparation of a pharmaceutical with many safeguards to such things as quality and protection against deterioration, that are not feasible on the liter or gallon scale. This is merely the result of

scientific progress. But this change can be compared with the use of physical diagnostic equipment by the physician, or by the use of the typewriter and photostat machine instead of the laborious hand copying and copy-press work of the old fashioned lawyer's office. These scientific, engineering, and technical advances have given these people more time for their personal contacts, and that same opportunity has been extended to you. How you use it will determine your professional standing.

Perhaps some one wants to ask me just what items we ought to leave out of the stock-in-trade of the average drug store. You will have to answer that yourself. Is there an average drug store? Communities vary greatly and neighborhoods that appear to be the same may have greatly diversified needs and demands. I have no doubt that automobile tires and alarm clocks, as only two examples, may be sold profitably, and excusably, by a pharmacist. But is the public going to think of him as a professionally trained man if his store looks and smells like a tire shop?

One of my good friends tells me that when he told a chance customer he did not sell sandwiches she asked, "What kind of a drug store is this?" Rightly or wrongly, she had come to think of a pharmacy as an emporium. A few years ago a grocery chain became involved with a state board of pharmacy over the sale of vitamin capsules. One of the large manufacturers flew to the assistance of the board, and wished me to take part in a very important conference dealing with the skill required in vitamin distribution. But I had seen too many "help yourself" display cases of vitamin products placed on druggists' counters to take that argument too seriously. I question whether we ought to object to any type of merchant selling our type of goods if we expect blithely to offer anything in his stock of trade, and particularly during the late hours when we are open ostensibly to care for the health needs of the community.

I think that the most of what we have lost we have given away. We have tended to look to legislation rather than knowledge and art to safeguard our business. We have probably tried to serve too many supposed community needs. We have certainly followed "trends" sold to us by travelers and trade papers. In the middle ages it was said that the grocer

is only a tradesman, but the art of the apothecary is a mystery. The trend of pharmacy laws is to respect that mystery.

One of the great Protestant denominations several years ago made up its mind regarding amusements that would be tolerated among its members. As I recall it, the criterion was "Those that can be taken in the name of the Lord." Let me commend that thought to this senior class. Let your pharmaceutical work be whatever you can justify or approach in a professional way. Whether pharmacy goes on in the world as a respected profession rests in your hands, and the hands of those who come after you.

World Responsibilities of Education*

EDWARD H. KRAUS

Dean, College of Literature, Science, and the Arts, University of Michigan

The winning of the war is the first objective of the United Nations. The Nazis and the Japanese must be defeated decisively. The winning of the war is much more assured today than it was when the Michigan Schoolmasters' Club met a year ago. We sincerely hope that when we meet in 1945 victory over one, if not over both, of our enemies will have been achieved.

The winning of the peace is another prime objective of the United Nations. Without the establishment of a durable peace, it seems reasonable, as the result of the unfortunate experience following the last war, to predict that within a quarter or one-half of a century, the world will again be torn by a global holocaust more destructive even than the present gigantic struggle. To assist in preventing another world catastrophe is a grave responsibility of all educators.

In the winning of these two objectives, education is a most potent factor. After the Franco-Prussian war, Field-Marshal Moltke stated that Austria in 1866 and France in

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1870 had been defeated by the Prussian schoolmaster. Science and technology, along with efficient organization, and high morale, were factors of momentous importance in bringing victory to the Allies in 1918. They are also of paramount importance in the present struggle. Education is fundamental in the development of these factors.

A durable world peace must of necessity rest upon a co-operative world. But cooperation among nations is fostered most advantageously through the development of wise systems of education in all nations and the free dissemination of the results of the discoveries and advances in the physical and medical sciences, in technology, and in all branches of learning.

In this country and in Canada, marked advances have been made since the Prussian schoolmaster won the Franco-Prussian war in 1870. It is well known to all students of the history of education that our early systems were strongly influenced by those of Britain and Germany. In higher education, German influence was especially strong. Up to the turn of the century there had been a steady stream of men from the United States and Canada studying at German universities for it must be acknowledged that they were great seats of scholarship and research. To study at a German university during the 80's and 90's of the last century or during the early years of this century, was a rich experience. The three persons on the platform this morning had this privilege. One, at Göttingen; the other two, at Berlin and Munich, respectively.

As the result of the great westward movement and the remarkable development of industry in this country following the Civil War, education on all levels expanded at an astounding rate. The educational scene of fifty years ago, that is, of the early 90's, was markedly different from that of today. At that time, programs of instruction on the secondary school and college levels were greatly restricted. Admission to college was on the basis of prescribed units. Enrichment of the high school program and the liberalization of college admission requirements and of the curricula of higher education were strongly urged.

During the past fifty years, our educational advances

have been stupendous. Many of our present schools, colleges and influential scientific and educational agencies were developed during this period. In other words, fifty years ago there were no junior colleges, or schools of education or of business administration on the college level. At that time summer sessions and graduate schools were just emerging. Thus, at this University in the early nineties there were only six independent units, whereas today we have sixteen.

In addition, there were no great educational and scientific foundations such as the Carnegie Foundation for the Advancement of Teaching, The Rockefeller Foundation for Medical Research, the General Education Board, or the Carnegie Institution of Washington. Today, there are hundreds of such foundations. Furthermore, there were no industrial research laboratories of which there are now more than 2500 in this country. The contributions of these foundations, institutes and research laboratories to civilization the world over are of incalculable value.

With this remarkable development and the marked increase in attendance upon our schools and colleges, educational leadership has moved westward and is now the responsibility of the United States and Canada. The war has emphasized this for the educational and industrial systems of most of continental Europe have been greatly disrupted, if not entirely wrecked. Indeed, during the middle twenties our educational and industrial achievements were widely recognized by eminent scholars abroad, for example, by J. Ellis Barker in Great Britain, and by Julius Hirsch and others in Germany, who strongly urged the adoption of many of our methods. There was much talk at that time of the Americanization of Europe. These scholars were fully aware of the fact that a country blessed with abundant natural resources and which has developed wise systems of education and acquired great skill in industry and technology, may well become the greatest producer among nations and the leading power in world affairs.

With the entrance of this country into the war our industrial, technological and educational forces were at once marshalled and the shift from peacetime to wartime production was made in an incredibly short time. When France fell in June, 1940, the United States produced in that month war

materiel worth \$150,000,000. Two years later, that is in July, 1942, the production was thirty times as great and was increasing rapidly from month to month. During recent months it has been fifty times as great, or at the staggering rate of seven to eight billion dollars a month.

Most of the country's manufacturing facilities have been converted from peacetime operations to the production of war goods. In addition, at least 1500 new plants, many of them gigantic in size, have been erected. It is thus possible to build more than 9000 airplanes a month, five ocean-going ships a day, tanks and cannon in any desired amounts and enormous quantities of ammunition and other war materiel.

This rapid transformation has rightly been characterized as a miracle in management and technology. It was accomplished through the close cooperation of the federal government, the armed forces, industry and our educational institutions. Never before have so many demands been made upon our educational institutions for staff members and advanced students with special qualifications as during this great emergency. Early in the war one of our leaders said: "A hundred physicists in this war are worth a million soldiers."

You will recall that Pasteur was accustomed to say: "Chance favors the prepared mind." A high premium has been placed upon prepared minds. To be sure, the demand for men with highly specialized training has been unusual. But it is generally recognized that the broadly trained minds have made the most significant contributions. This is because the emergency has presented so many new and complex problems that only those with a broad and sound training in the fundamentals of the fields involved could grapple with them successfully. Those with only a handbook training have been at a serious disadvantage.

Following the cessation of hostilities, there will be a great influx of students from other countries to the educational institutions of the United States, Canada and Great Britain. Already some of the war-torn nations, China for example, are formulating plans to send many carefully selected young men and women to study abroad. This is also true of our Latin American neighbors to the South. Industrial concerns are also fully aware of this impending influx of students for

at least one organization with world-wide affiliations is planning the establishment of a relatively large number of research fellowships open to qualified students from all nations.

Among individuals, cooperation is best achieved when the individuals are well known to each other and mutual confidence has been established. So, too, among nations, it is imperative that the peoples of the world become better informed concerning the life, ideals and educational and economic systems of the family of nations. It has been amply demonstrated that one of the most effective ways to accomplish this is through the exchange of students, staff members and professional leaders. We, in the United States and Canada, must plan to receive large numbers of students and scholars from other countries, and we must, at the same time, recognize that a solemn responsibility rests upon us to serve them to the best of our ability and on the highest educational and spiritual levels.

Moreover, we must also recognize that we can profit greatly by sending substantial numbers of carefully selected students and staff members abroad. This migration of students and faculty, from one country to another, will after the war become increasingly important and should contribute vitally to a better understanding and hence to mutual cooperation among nations. The various ways this migration and exchange can be facilitated are being widely discussed.

Leaders in this movement emphasize that the development in our communities of a sympathetic and helpful attitude toward students and scholars from other lands and the wise interpretation to them of our way of life and of our cultural and national ideals, are primarily the responsibilities of our schools, colleges and educational organizations, such as the Michigan Schoolmasters' Club.

That our educational institutions have made large and extremely significant contributions to the war effort cannot be gainsaid. The elements of strength and weakness of our educational programs have, however, been brought out in bold relief, and we find that the weaknesses are many and grave.

The need for greater emphasis upon fundamentals in our curricula in high school and college has been stressed repeatedly. In the zeal in recent decades to enrich high school cur-

ricula, many subjects of only transitory and doubtful value have been introduced and substituted for those of more permanent worth. Whether or not the high school student immediately enters upon a life's career or goes on to college the need for more substantial training in English, history and government, mathematics and science cannot be over-emphasized.

The war has made us foreign language conscious. Never before have we sent so many persons overseas where languages other than English are spoken. Then, too, foreign language broadcasts, which are now very common, will be greatly increased after hostilities cease. Accordingly, in the interest of a broad education and a better understanding of other peoples, it is incumbent upon our schools and colleges to encourage the study of modern foreign languages.

As one, who for forty years has favored the liberalization of college entrance requirements, I am now forced to conclude that the pendulum has perhaps swung too far. This questioning frame of mind is based upon the fact that in too many high schools in Michigan and other states students planning to go to college are permitted to complete the needed sequences in academic subjects early in their course. The senior year, which should be the most important one in secondary school, is then given over to the accumulation of the necessary fifteen units in subjects some of which are of transitory or even of doubtful value. Then, too, the extra-curricular activities of the senior year have in recent times been given undue prominence. Thus, the transition from high school to college, which is usually quite difficult for good and well-prepared students, becomes extremely so for those who have largely dissipated their energies during the senior year. This serious defect could well be remedied by wise counseling with the ultimate success of the student in mind, rather than his immediate desires and pleasures.

Many of our college students sincerely regret that they have been given too much freedom in the election of courses. This is especially true of students in our professional schools to which the admission requirements are exceedingly liberal. Thus, in law schools requiring a college degree for admission but with no prescribed courses, many of the students about to graduate found, when faced with the draft, that they

could not meet the Navy standards for officer training because they had not studied mathematics in either high school or college, or only in high school. In order to assist such students, it was necessary to arrange special sections. We thus had the spectacle of senior law students, who had spent nearly seven years in college and professional school, studying elementary freshman, or even high school, mathematics. Time does not permit the giving of other similar cases.

There is much in our educational progress today which suggests the appropriateness of the following incident. Some time ago a noted speaker who was on a lecture tour desired to prepare a manuscript of one of his addresses. Accordingly, he went to the stenographer of the hotel where he was staying. He reported that she was all vogue on the outside and that he soon found that she was all vague on the inside, for in the manuscript as it was delivered to him the phrase "redemption is cosmic in nature" read redemption is cosmetic in nature."

It is indeed gratifying that our curricula are being carefully scrutinized in the light of the experiences of this period of severe testing. The war training programs have introduced innovations which must be properly evaluated in terms of our postwar responsibilities, and, as far as possible, our weaknesses as to fundamentals and thoroughness should be eliminated.

Today, much is being said and written to the effect that we cannot hope for a prolonged era of peace unless our students are trained for world citizenship. That our students and citizens in general have become more world-minded cannot be denied. The distress and agony suffered by millions all over the world have caused profound changes in our attitudes with respect to the responsibilities we must shoulder for the peoples of other lands. It may well be asked: What makes the citizen of any community a good world-citizen? I believe that question has been well answered by Eric A. Johnston, President of the United States Chamber of Commerce, when he said: "We talk too much of peoples, in the mass; and not enough of people, who make a locality. You will never get a good world except through good localities; you will never get good localities except through good people; and you will never get peace except through a good world."

It is also pertinent to quote another industrialist, Mr. K. T. Keller, President of the Chrysler Corporation, who in a recent address said: "I should like to see the United States come out of this war with the American way of life and free enterprise on a sound footing. Let us build our future on the basis of encouraging the honest, the thrifty, the industrious, and the able." Furthermore, "I should like to see the United States, in its social, economic, political and spiritual life, set such a fine pattern that the other peoples of the world and other nations, instead of regarding us as seeking to inflict our ways upon them, will wish to emulate our ways themselves."

Industry is already planning for a rapid and comprehensive conversion to a peacetime program, as soon as the international situation permits. If close cooperation between industry, labor, agriculture and government can be developed, expansion of production and employment will be the order of the day. Business intends to face the future with courage and hope. Educators should not forget that our people have always taken a justifiable pride in our schools and colleges, and we have every reason to believe they will continue to do so. Education, like business, should face the future with high courage and with a strong faith.

Our men in the armed forces are eagerly awaiting the time when they can return and continue their educational pursuits. This is clearly indicated by the following excerpt from a letter recently received from Major A. W. Bromage, a member of the staff of the College of Literature, Science, and the Arts of this University, who is now overseas. Major Bromage says: "After the war, the college will have a tremendous opportunity to educate and re-educate a generation of young Americans caught up in this gigantic struggle for freedom and liberty. Those of us who are here and see and hear our boys firsthand, know how much they look forward to the time when they can resume their places in American society, touch the native soil and reenter the halls of our universities. Already I look forward to the day when I can meet these boys again in our classrooms and begin again to reconstruct the world of scholarly and social interests now apart from them. Education is the cornerstone of democracy. Therefore, leave no stone unmoved to rebuild and remake

your faculty for the great days before us. We shall not care about such minor things as buildings and programs. The independent scholar and teacher and the inquiring mind of the student, these are the inner circle of a great college. It was always so and it must always be so. To do otherwise is to fall for regimentation alien to the American."

Through the gigantic efforts made by the United Nations, the needs of our armed forces are now being well met. The responsibility of final victory rests with those in high command. We have been repeatedly assured that victory will be ours in due time. In replying to an inquiry from his brother Milton as to whether he should accept the presidency of the Kansas State College of Agriculture and Applied Science, it is reported that General Dwight D. Eisenhower said: "Take it. A large part of the kind of peace achieved after the war rests on the principles laid down in American schools."

Our people have always had a deep passion for education. Indeed, Conrad Moehlman in his recent book, *School and Church*, says: "Public education has become the greatest cultural achievement of the United States." This passion for education not only persists but has been greatly intensified by the war effort. The responsibilities of education to the student, community, state and nation continue. The war has forced us to recognize more keenly than ever before that education also has grave responsibilities to the peoples of other lands.

One:Four vs Two:Three Division of Prepharmaceutic and Pharmaceutic Study*

CHARLES V. NETZ

College of Pharmacy, University of Minnesota

At the 1944 meeting of District Five, Colleges and Boards of Pharmacy, the opinion was officially recorded that it was time to consider a prepharmaceutic year of study as a requirement for matriculation in a college or school of phar-

*Presented at a meeting of District 5, Colleges and Boards of Pharmacy, May 8, 1945, Minneapolis, Minnesota.

macy. The resolution embodying this thought did not recommend immediate adoption of a prepharmaceutic requirement but implied that all phases of the problem should be studied so that a soundly conceived curriculum would be ready for use at the proper time. It is my opinion that this resolution was motivated by a sincere desire to provide for pharmacy colleges students with a higher general level of intelligence and thus feed into the rank and file of pharmacy practitioners better qualified graduates who would eventually dominate the field.

The need for a prepharmaceutic requirement has not been accepted by all educators. The Committee on Post-War Planning of the A.A.C.P. solicited opinions from a group of pharmaceutical educators on the question "Is this the time to consider the advisability of requiring at least one year of prepharmacy study?" The replies were printed in this *Journal* for April, 1945. Twenty-five answered NO, eighteen said YES, and two were undecided. I am convinced that some who voted NO, thought the question called for immediate introduction of a prepharmaceutic requirement and that a proper interpretation would have brought a greater number of favorable replies. Some few preferred to compare pharmaceutical education with education in technical fields such as chemistry and engineering, rather than in professional fields such as medicine and dentistry and since technical curricula in general do not have a pretechnical requirement, pharmacy should not have one. However, the question of adding or not adding a prepharmaceutic requirement is not a part of this discussion.

Before proceeding it might be well to discuss briefly my conception of "prepharmaceutic" and "pharmaceutic" study and the function of each. "Prepharmaceutic" study should include both liberal arts and basic or fundamental science courses. It would screen out poor students and provide for pharmacy schools better students with broader cultural training. For years dentistry and medicine have had preprofessional requirements largely for the same reasons. "Pharmaceutic" study should include professional study courses which train the student specifically in the practice of professional pharmacy.

Educators and others, interested in a prepharmaceutic requirement, are divided into two groups. One group advocates one year of prepharmaceutic study as an admission requirement for a four-year course of professional work, hereinafter referred to as the 1:4 PLAN, while the other group believes in two years of prepharmaceutic study followed by a three-year pharmaceutic course of professional subjects, hereinafter called the 2:3 PLAN. It is my purpose this afternoon to point out both the desirable and undesirable features of both plans from the standpoint of imposing them upon our present curricula.

The representative pharmacy curriculum of today includes liberal arts courses and courses in the fundamental sciences which total about one year of study. The remaining time is devoted to the study of professional work and this time totals approximately 3 years. In other words the present pharmacy curricula in general represent a 1:3 plan even though the study patterns do not clearly separate the courses into a prepharmaceutic and pharmaceutic period. Please bear this in mind in the following discussion.

1:4 PLAN

Present curricula in general can easily be adjusted to this plan. One year of prepharmaceutic study can be provided by the liberal arts subjects and fundamental science courses now required. The professional courses, totalling about 3 years of work, can be expanded as desired and new professional courses can be added to make 4 years of pharmaceutic training.

The prepharmaceutic one year has been criticized on the ground that it is not of sufficient length to embrace all sequences in basic science courses. For instance organic chemistry must be retained in the pharmaceutic 4-year period. Schools with a math prerequisite for physics would have to continue with physics in the first year of the professional training period. The prepharmaceutic requirement is, of course, much less than the preprofessional requirement of dentistry (two years) and medicine (three and four years).

On the other hand the pharmaceutic period of study will be the same in length as the professional training in medicine

and dentistry. Thus, with upward adjustments in the type of work accepted for the practical experience requirement (one year in many states), licensed pharmacists will be on a par with licensed physicians and dentists insofar as the length of their professional training is concerned.

2:3 PLAN

Present curricula can be adjusted to this plan, probably with less difficulty than to the 1:4 plan. All liberal arts subjects and course sequences in fundamental sciences, totalling somewhat more than one year of study, can be included in the prepharmaceutic requirement. Additional liberal arts subjects can be specified to fill out the two-year period. The professional subjects remaining will provide nearly enough work to round out 3 years of pharmaceutic study and any slight deficiency in credit hours can be met by extending existing courses or by adding one or more new courses.

The prepharmaceutic period of study will be equal in length to that of dentistry and more comparable in length to that of medicine. It will provide for pharmacy colleges students with a broader cultural training than under the 1:4 plan and it will give to students who plan to continue work for advanced degrees an opportunity to include fundamental courses with direct application to post-graduate study. Unfortunately many students do not decide to continue with study at the graduate level until the third or fourth year in college. The thought has been expressed that a two-year prepharmaceutic requirement is too long as an initial step,—that a one-year requirement would be more acceptable at present and a second year could be added later when the value of prepharmaceutic work has been demonstrated in practice.

Three years of pharmaceutic study would not require an appreciable increase in faculty teaching loads or entail additional expense for new faculty members. However, from the standpoint of professional training, the graduate of the 2:3 curriculum would be no better qualified than are graduates from present curricula. Further, college bulletins would probably list the pharmacy course as three years in length. To the uninformed layman and our colleagues in the other health professions this might appear to be a reduction in

educational requirements, an impression which, although erroneous, should be avoided.

Apart from the purpose of this discussion there has arisen the question of a new degree for graduates of colleges with minimum curricula of five years. The Bachelor of Science degree is standard for 4 years of study. Five years of study should entitle the graduate to a more advanced degree and suggestions have included both the Master of Science and Doctor of Pharmacy degrees. I can visualize much opposition to the last named degree from practitioners in other health fields and from graduate faculties. Medical practitioners will conveniently forget that their educational requirements were considerably lower in times past when an M.D. degree was earned with as little as two years of collegiate study.

Reference has been made a number of times to the length of the educational requirements for medicine and dentistry as if they were criteria of professional education. Possibly pharmacy should ignore existing patterns of professional education in other fields and chart its own path on the level between the peak of professional idealism and the valley of commercialism. I am inclined to the policy of setting our sights upward toward the peak and away from the level road. When we reach the foothills of a prepharmaceutic requirement we can then pause for breath before continuing on the upward path. And let us hope that the pause will not be as long as the pause following adoption of the four-year curriculum.

*Theory and Practice Can Be Combined**

L. WAIT RISING

University of Washington, College of Pharmacy

A year ago the University of Washington College of Pharmacy embarked upon a teaching experiment that has proved eminently satisfactory and more than amply rewarded the faith of its protagonists. The experiment was designed to combine the theory and practice of pharmacy in a truly practical way.

*See letter in *Gleanings from the Editor's Mail*.

As a beginning a course for seniors was established and named "Professional Pharmacy." It requires two classes plus a laboratory a week and earns 3 credits. Arrangements were made with the Seattle professional pharmacies to use these institutions for the laboratories. The University is particularly fortunate in being located in a city recognized everywhere for the outstanding quality of its professional stores. It can be said with truth that their fame is becoming international.

Every pharmacy contacted was most cooperative and genuinely enthused over the opportunity to help.† Each agreed to take one or two seniors for an afternoon or morning laboratory and instruct them in the practical application of the things learned in college.

One of the class periods was devoted to a lecture on the problems relating to the conduct of a professional pharmacy and the other to class discussion of how the various problems were solved in the laboratory institutions. The correlation between theory and practice was near perfection. The students could begin to dovetail the academic with what they would be doing after graduation. The transition from student to practicing pharmacist was made less abrupt. Both college and professional life were seen in a more realistic light. The students do a greater variety of laboratory work under actual conditions of practice with close supervision by both professional pharmacist and instructor, than would ever be possible under the ordinary system of teaching. Very definitely the professional pharmacy is the best possible laboratory for *advanced* students. It is analogous to the cadet training seniors get in hospital pharmacies attached to university medical schools, and is more broadly practical. In short, without listing other advantages, better trained pharmacists were the direct result of the course.

Both students and managers were pleased with the overall achievements. It meant work for the pharmacies because strange and often timid students had to be given considerable supervision in all they did, but the sacrifice was gladly made in every instance. It meant extra work for the instructor

† Since the program was originated with a war class containing only 12 members not all our better stores were used. The following participated in the first year program: Kelly-Ross, Colden's, Thorstenson's Harts, Bracken's, Braley's, Lang's, and one of the Bartell prescription departments. Our thanks go to these, and also the others who would gladly have helped had they been needed.

through the time required for routine checkups with the pharmacies to gather reports on his students, and arranging their schedules.

The idea is not new. Some of our outstanding engineering schools have been doing this on a much more extensive basis for years. Our medical schools do it as a part of their upper division clinical practice. Clinical or field experience for academic credit is the keystone of modern education, and is being utilized by forestry, bacteriology, education, and others in addition to medicine and engineering which have already been mentioned. This is the pharmaceutical counterpart. We recommend its use wherever professional facilities will permit. It will be greeted with enthusiasm by the pharmacists of the state. Our own state association at its annual meeting passed a resolution commending the work and asking for its extension into the junior year.

Items of Human Interest

Dr. and Mrs. Charles V. Netz of the University of Minnesota spent the month of August in Southern California.

Lt. Col. Lloyd M. Parks, Purdue, 1933, has been home on leave after having served as a Chemical Warfare officer in Italy with the Fifth Army. He is now subject to release or reassignment in the Pacific Area. When released, it is expected he will return to his former position as professor of pharmaceutical chemistry at the University of Wisconsin.

Dr. Henry W. Heine, assistant professor of commercial pharmacy at Purdue, now on leave to serve with the War Production Board but who expects his service will be completed within the year, was a recent visitor.

William C. Henderson, father of the registrar of the Brooklyn College of Pharmacy, recently passed away at the age of 85.

Dr. Charles O. Wilson visited George Washington University and the American Institute of Pharmacy in Washington, D. C., in July. While there he conferred with Drs. Hazelton and Fischelis relative to the Scientific Section of the A. Ph. A. Dr. Wilson suffered an accident to his knee which required an operation and hospitalization for two weeks in September.

Dean D. B. R. Johnson attended a recent meeting of Committee on the Status of Pharmacists in the Government Service. The principal business of the meeting was the implementing of the Pharmacy Corps Bill, passed by Congress, July 12, 1943.

The Wajert family of New Castle, Pennsylvania, holds a record in the Pittsburgh College of Pharmacy. Theresa Florence Wajert is a freshman. Her sister, Agnes, graduated in 1944. Her father John C. graduated in 1910; her uncle Leo A. in 1926 and another uncle, Martin, was a former student.

Editorials

Beyond Mere Replacement

The fact that a department of international education and cultural relations is the first formally organized subdivision of the United Nations Organization must make every educator realize the importance of his position in world affairs.

As the history of the war is unfolded in its manifold details, we are learning how important a part education and the dissemination of information to the enemy, as well as to our own men, played in achieving our objectives.

Looking at professional education, and particularly pharmaceutical education, from the long range point of view, we can visualize objectives far beyond the more or less minor problems of immediate concern.

Such expeditives as accelerated courses, readjustment of admission dates, the shifting of emphasis on various subjects in the curriculum, recruitment and admission policies, and methods of financing pharmaceutical education are after all details in a broad program which seeks to integrate pharmacy with the social, economic and technical problem of supplying the highest type of medical care to the greatest number of citizens.

It is obvious that we need more good teachers. It is likewise obvious that any estimation of necessary numbers of well-trained pharmacists for the future which is based solely upon the replacement calculations for keeping our existing retail pharmacies properly manned is somewhat short-sighted.

The survey of pharmacy and pharmaceutical education instigated by the American Association of Colleges of Pharmacy, will fall far short of its value to the profession if it is looked upon merely as a means of justifying the present program of pharmaceutical education. Neither its sponsors nor its performers can predict the extent of its scope and effect for no survey of any phase of activity concerned with providing medical care has ever been made at a time so fraught with potentialities in this field as the present.

Even the most reactionary element in the pharmaceutical industry recognizes the fact that "fighting disease with drugs" has taken on a new meaning. Broad as the legal definition for drugs may be, it is being narrowed more and more in its professional implications. A drug, to be dignified by that name, must have demonstrable merit in the eyes of the modern

physician. The modern pharmacist in the manufacturing laboratory, in the hospital pharmacy, in the private pharmacy serving the public in remote as well as densely populated places, is conscious of the fact that new drugs must prove themselves before they can attain the acceptance which was granted without question to medicines from animal, vegetable and mineral sources in the past. These are days of the application of exact sciences to the practice of arts such as medicine and pharmacy.

What a challenge to the well-equipped teacher and what an opportunity for the young man or woman with humanitarian instincts, native intelligence and latent skill in the art of healing.

As ever, the compensation to such persons is never wholly a monetary one. Scientists and practitioners of the medical arts must be fed and clothed and they must have opportunity to raise families and enjoy life in their own way. They should not and do not expect enormous incomes, but they must be paid sufficiently to keep them interested and free to follow their more unselfish bent of contributing to healing the sick.

American pharmacy must perpetuate itself as a member of the group of health professions whose prime interest is the care of the sick. The place where the ideals of the profession are nurtured and brought to fullest flower is the college of pharmacy. That is why it is entitled to public support, to support by all the professions engaged in medical care and public health activities, and to the unqualified and active support of the profession which it keeps supplied with manpower.

We can afford to look beyond the preparation of a pharmaceutical syllabus, the standardization of schools of pharmacy to assure a minimum course of training, and the survival of every institution now engaged in training pharmacists. In doing so we can visualize the growing opportunities for the development of a complete program of pharmaceutical service in government hospitals, in hospitals of the military services, in public institutions and in private hospitals. We can likewise envisage pharmacists serving in the control of manufacturing and developmental programs in industrial plants engaged in producing life-saving and disease-preventing drugs. We can further look forward to the ever-growing importance and internal segregation of pharmaceutical activity from other work carried on in the pharmacies and drug stores of the nation. All this requires pharmaceutical personnel beyond

the minimum replacement requirements for any one activity.

The most hopeful sign that there is keen realization of these needs on the part of leaders in the profession is the attention which is being given to such matters by the American Pharmaceutical Association, the American Association of Colleges of Pharmacy, and the National Association of Boards of Pharmacy. Naturally we must look to those in charge of the development of programs of pharmaceutical education in the universities and colleges of the United States to give leadership in one or more of the types of training which will fit men and women to place the contribution of American pharmacy to the healing arts on the same high level which is being maintained by our sister professions.

Robert P. Fischelis

“Pharmacy Standards Upheld in Connecticut”

“It is good to know that the General Assembly finally ended its sorry session without adopting the bill that would have given 250 assistant pharmacists the right to qualify as registered pharmacists. To be a registered pharmacist one must have completed successfully a four-year course in an accredited pharmacy college and have served an apprenticeship of one year. An assistant pharmacist has to attend a college of pharmacy for one year only, after which he is supposed to study for three years under a registered pharmacist.

“The proponents of this bill gave it the cloak of ‘war emergency legislation,’ the plea being that there is now a shortage of registered pharmacists. It is true that there is a shortage, but no greater shortage than exists in many other professional and business lines. The inconvenience afforded no justification for lowering the pharmacy standards, which might easily bring unfortunate results.

“Once the public thoroughly understood the dangers inherent in the proposal, opposition to it became articulate. Physicians, nurses, druggists, and the press recorded their opposition to the measure. Its defeat was several times indicated, but it seemed to have all the nine lives of a cat. Even after the Senate had apparently given it a well-deserved quietus, an attempt was made to revive it, which might have succeeded had not the Legislature become lost in its own confusion.

“Great credit is due the registered pharmacists and re-

sponsible druggists for their vigorous opposition to this ill-advised attempt to lower the standards of an exacting profession."

—An editorial which appeared in the HARTFORD COURANT on June 8, 1945, two days after the close of the sessions of the Connecticut Legislature.

Variations in College Curricula

A survey of twenty accredited schools of pharmacy, which are probably among our most progressive colleges, reveals the following interesting information which is subject to the usual error, since the latest announcements were not always available.

Seventy-five per cent of the colleges do not give a separate course in pharmaceutical Latin, but treat it in connection with the official nomenclature of the various subjects. Thirty-five per cent require various credits, up to 25, in one of the arts courses in romance or modern language. Thirty per cent require courses in the social sciences, either history or economics (2-8 credits). Thirty per cent require courses in English literature or philosophy, mostly courses in psychology (2-8 credits). Forty per cent require courses in college mathematics (algebra and trigonometry). Fifteen per cent require courses in college physics, in addition to the applied physics in the pharmacy courses. Forty-five per cent do not give separate courses in metrology, but combine it with the introductory courses in pharmacy. Fifteen per cent require courses in emergency aid. Seventy per cent offer a course in pharmacology which, in most instances, includes the work of former separate courses in therapeutics, toxicology, and posology. In some schools, laboratory exercises on the action of drugs including a few bioassays are given. Thirty per cent still use the names, *materia medica*, *therapeutics*, *toxicology*, and *posology* for separate courses. Thirty per cent require a course in accounting (bookkeeping). Ten per cent still use the term, *commercial pharmacy*, although this title was eliminated in 1929 by the A. Ph. A. section in favor of the more appropriate name of *pharmaceutical economics*.

It is obvious that a greater uniformity of courses and of content is needed which might be secured if the faculties of schools would give greater consideration to the *Pharmaceutical Syllabus*.

Charles E. Mollett

The President's Page

Graduate Study and Research in Pharmacy

There is some evidence of an increased interest in graduate education and research in our schools of pharmacy at the present time. The writer in 1928¹ called attention to the need that existed and pointed out that education in pharmacy at the graduate level had failed to keep pace with that in the allied professions and sciences. The modest progress made by a few schools since that time has been interrupted by war conditions which have brought about a sharp reduction in graduate and research programs. Now there are convincing reasons for the belief that graduate study and research in pharmacy will expand far beyond pre-war levels during the next decade. The advancement of knowledge continuously broadens the areas of promising research; business, industry, and government are expanding and supporting research; and technically trained men and women will be needed to supply the resulting demand. The war-time prestige of research, government aid for veterans, and the postponement of advanced study by many students should result in record enrollments for graduate work in the immediate post-war years.

Although the literature pertaining to graduate education in general has been abundant, the interest in graduate education in pharmacy has been limited. It seems timely, therefore, to again raise this subject for consideration. It is not necessary to repeat much that has been printed, however, since the references are readily available. The objectives of graduate education, selection of graduate students, the graduate faculty, the graduate student program, research problems, and the development of research spirit were discussed in an early paper.² Other papers have set forth plans of study³, types of training desired^{4,5}, and the dependence upon research for progress in pharmacy.⁶ There are considerations, however, which might well be developed further.

The Function of Graduate Study and Research.—Traditionally, the primary purpose of graduate education has been directed to the development of creative ability and research skills. As graduate education has expanded, however, there has developed a need for numerous programs which may be classed as advanced professional education, e. g., hospital

pharmacy. These programs fill a need for professional workers familiar with research and its applications, who although able, often are not fitted by temperament or special aptitudes for research. The development of such programs with less emphasis upon creative research need not dilute graduate education or lower standards if clear distinctions are formulated and understood in planning graduate programs of study. It is suggested that schools of pharmacy might well adopt the following principles in planning individual programs of study:

1. The interests and purposes of the individual student should be the guiding factor in organizing a program of studies;
2. Advanced professional work primarily should be a one year terminal program leading to the M. S. degree;
3. The degree of Doctor of Philosophy should be reserved for those who show special research abilities, and the granting of the degree should be contingent upon the presentation of satisfactory original research. The non-terminal M. S. degree may be used advantageously to acquaint the student with the methods and procedures relating to research.

Graduate Education Is Expensive.—Graduate education in a school of pharmacy is necessarily expensive. The classes are small and graduate students require closer supervision and more individual attention than do undergraduate students; excellent library facilities and service must be maintained; fine scientific equipment in sufficient quantity must be provided; research materials must be stocked and cared for; and greatly expanded laboratory space is necessary. If funds are not available for faculty, equipment, and supplies, graduate work and research cannot thrive. It is necessary to make research as easy to accomplish as possible. This often requires duplication of expensive equipment, necessary auxiliary facilities such as an animal room, photographic and shop facilities, and administrative, stenographic, and purchasing assistance. Full cooperation from the administrative office is necessary for nothing destroys graduate student enthusiasm more than delay and continual battles against administrative indifference and organizational system. A graduate program to be successful requires cultivation and only thrives when the administrative office, faculty, and students work in a spirit of friendly coordination.

Integration of Undergraduate and Graduate Work.—The inflexible undergraduate curriculums in pharmacy have sel-

dom been designed to lay the foundations for graduate work and research. The student who desires to major in pharmaceutical chemistry does not obtain enough basic mathematics or chemistry, the student who wishes to major in pharmacology rarely has the necessary prerequisite courses in physiology and anatomy, and even the student who seeks to major in pharmacy often lacks the necessary theoretical or practical background for graduate work. It is necessary to recognize that the prospective graduate student should select his area of specialization and lay a foundation for it at the undergraduate level. Further, the usual pharmacy curriculum does not offer the undergraduate any stimulating association with graduate students or research. Too often the undergraduate curriculum is designed as an end in itself—a practical education planned to turn out the graduate as a trained clerk. There has been little organized effort to inform the best undergraduate students in pharmacy about the purposes and opportunities of graduate study. These things which we have not done must be done before we can establish graduate education on a sound basis. The writer has suggested a flexible curriculum⁷ that would enable the student to prepare for specialization. A curriculum of this type would permit a graduate with the B. S. degree to prepare for specialization in his field of choice.

A five year undergraduate course would tend to discourage superior pharmacy students from taking up graduate studies. The five undergraduate years plus a year of experience plus an additional three to five years in graduate study is a formidable and discouraging series of hurdles to an intelligent and ambitious young man. This is particularly true when the opportunities and rewards available from a study in such fields as medicine and chemistry are equal or greater.

The Graduate Faculty.—No school can have greater prestige than the composite prestige of its faculty. The development of a graduate faculty requires careful selection and administrative cooperation to develop great teachers. Ideal working conditions must be provided as fully as possible; time must be allocated for research, publication, travel, active work in professional and scientific societies, and for special assignments; funds must be provided for the additional expenses incurred; and most important, the objectives of each faculty member must be understood, and his accomplishments must be appreciated and rewarded.

Since a school of pharmacy is usually small and has a limited faculty, it is necessary that most of the graduate teaching should be conducted by staff members whose primary responsibility is undergraduate instruction. There obviously will be many situations where individual staff members can be employed to best advantage entirely in undergraduate instruction or in research and direction of research. As a general principle it does not appear desirable to differentiate staff into research and instructional staff or undergraduate and graduate school staff. It is advantageous to have a designated graduate faculty both as a part of but separated by special appointment from the undergraduate faculty. In this type of organization the benefits accruing from close association of undergraduate and graduate work can be preserved and the findings of research can be continuously directed into the instructional program. The distribution of the individual staff member's time between research and instruction is one method of insuring the vitalizing of the curriculum.

The teaching load of members of the graduate faculty should be adjusted in terms of the total load. This can be accomplished by relieving the teacher of some of the undergraduate work. Many factors other than contact hours enter into the determination of the teaching load, namely: size of the class, repetition of classes for which a single preparation suffices, use of perishable materials, the amount of time required outside of class for each scheduled class hour, student conferences, quality and quantity of assistance, and work for the school such as committee assignments. All factors must be examined before a reasonable teaching load can be determined. Until a clearly defined basis is established, it is suggested that graduate and undergraduate courses should be treated alike and that the direction of the project of a graduate student during the period of intensive research should be considered as equivalent to not less than one classroom teaching hour.

It is anticipated that the immediate post-war years will make heavy demands upon even an expanded staff to provide instruction for anticipated enrollments. During this period graduate and research plans should be initiated which will not call for rapid expansion of staff. Any decrease of enrollment at a later date will free staff time for the expansion of research programs. Care must be exercised in the employ-

ment of staff members to insure that individuals competent to give graduate instruction and direct research are employed so that there may be a shift in types of duties.

Graduate Assistants and Fellows.—The development of a strong program of graduate education is contingent upon securing able and promising students. Since few students can continue on their own resources, some schools have established assistantships and fellowships. Unfortunately some schools regard assistantships as a means of securing low cost instruction. This condition should not be permitted. Graduate students do not perform their best services either as teachers or as students unless they feel that they are being treated fairly. Complete uniformity in the recruitment of graduate students probably is impossible. As a step toward improvement it is suggested that there be prepared and distributed annually about March 1, a general announcement of available appointments. Such announcement should show clearly the stipend paid, the maximum hours of service required per week (including all duties), and the number of credits that the graduate appointee may carry.

The graduate record examination has become well established in a majority of the universities offering graduate work. This examination considered in conjunction with the undergraduate record of the student provides an excellent basis for selection. It is suggested that all schools of pharmacy provide means for members of the graduating class to take this examination.

Advantages of Graduate Work to the School.—Graduate education in a school of pharmacy may perform several useful functions when carried out properly. It causes the faculty to reassess the fundamentals of knowledge because every graduate teacher must keep abreast of his own and related fields. It provides an opportunity for working out methods of thought and procedure useful in all fields of instruction. It raises the general intellectual level of the staff because no teacher can long instruct eager and superior young men and women at the graduate level without continuous and assiduous self improvement. Some claim that it enhances the repute and prestige of the school. This advantage is often overemphasized; it is the improvement of teaching technics and faculty growth that make the reputation of the school.

These advantages can only be gained in a school where the resources and will to develop an outstanding graduate and research program obtain. In the absence of such resources and will, it is best to leave graduate education to other institutions and to concentrate on the improvement of undergraduate education.

1. Jenkins, G. L., "Graduate Education in Pharmacy," *Jour. A. Ph. A.* 18, 572 (1929).
2. Jenkins, G. L., "Graduate Education in Colleges of Pharmacy," *Annual Survey of Research in Pharmacy* 1938-39, p. 88.
3. Husa, Wm. J., "The Florida Plan of Graduate Study in Pharmacy" *Annual Survey of Research in Pharmacy* 1938-39, p. 92.
4. Beal, G. D., "Types of Research Training Desired by Research Institutions," *Ibid.*, 94.
5. Taylor, F. O., "Types of Research Training Desired by Pharmaceutical Manufacturers," *Ibid.*, 100.
6. Jenkins, G. L., "Research and Pharmaceutical Progress," *Am. Jour. Pharm. Educ.* 3, 15 (1939).
7. Jenkins, G. L., "Planning Pharmacy Curriculums," *Ibid.* 9, 413 (1945).

MARRIAGES

Mr. Milton C. Newroth, graduate student at Purdue, now assistant professor of pharmacy, Medical College of Virginia, and **Miss Marie L. Pearson**, daughter of Mrs. John Gibson of Lafayette, at the Brown Street Methodist Church, June 16, 1945.

Miss Kathryn Odney, North Dakota State College, School of Pharmacy, and Lt. Benskovf, U.S.N.R., early in May, 1945.

NEW IN THE FAMILY

Barbara Elizabeth Linn.—Born July 19, 1945, daughter of Mr. and Mrs. Kenny M. Linn, Purdue University.

Mary Jill Kleinberg.—Born September 14, 1945, daughter of Prof. and Mrs. Jacob Kleinberg, University of Illinois.

Joanna Nyiri.—Born July 13, 1945, daughter of Prof. and Mrs. Eugene A. Nyiri, their third daughter, Rutgers University.

Martin Olsen Ulan.—Born June 5, 1945, son of Prof. and Mrs. Martin S. Ulan, their first child, Rutgers University.

Since a meeting of the American Association of Colleges of Pharmacy could not be held at the usual time during the current year, on account of government restrictions, and since it was planned to hold a meeting of the Executive Committee later in the season, it was thought best by the officers of the Association to delay all committee and other reports, which naturally would have been presented at the annual meeting for publication in the January, 1946 number of the Journal. This will also give time for the revision of committee personnel and the proper presentation of any matters that have come before the Executive Committee and any action and dispositions which the committee thought wise to make.

The Editor's Page

A few days ago there came to the Editor's desk by a round about way, a four page circular which had aroused to a white heat the anger of a dean of a college in a great university in the middle west who had received it from a retail druggist in his state with the stern command to get the college of pharmacy of his state in the accredited list where students may receive "Free Pharmacy Scholarships In Seventeen Leading Colleges of Pharmacy." While the statement, if carefully read, does not say so, the dean is undoubtedly right when he says "The casual observer gathers from this folder, that the seventeen colleges of pharmacy mentioned on the back page are 'the leading colleges of pharmacy in the country'. To the casual observer it appears that a new standard has been established." Another unfortunate phase of the circular shows on the front page, in the distance, the outline of a magnificent building which bears a legend over the entrance which reads,—"The American Foundation for Pharmaceutical Education," which might lead the casual observer to think that these seventeen colleges were also endorsed by the Foundation as the leading colleges of pharmacy in the country. I know the dean of every one of these colleges of pharmacy to be a man of great personal integrity and I consider them personal friends of mine and I could not conceive of them allowing themselves to be singled out in this way if I had not myself done a lot of things just as foolish in my lifetime. If any one or all of them knew of this, the courteous thing for them to have done was to insist that all colleges holding membership in the American Association of Colleges of Pharmacy be included in the list. Then there would have been no cause for irritation. Progress in pharmaceutical education in this country has been so phenomenal because the members of the Association have held together and no attempt has been made to classify colleges within our group.

Any firm is to be commended which has a desire and makes an effort to improve the educational opportunities of the young people in their employ. It is understandable how a firm might suggest educational institutions in the cities in which it had stores if it expects these students to carry a college course and work for their support in its stores at the same time.

But if the firm expects the student to carry a standard college course and work for complete support and finish the course in four years, it is putting the student up against the impossible. That is an educational policy which from experience has proven to be unsound and represents a backward step in pharmaceutical education. The promotion of such a policy is not for the best interests of either the individual or the profession.

Again, by a circuitous route, there comes to the Editor's desk a circular which reads like the last appeal of a collaborator in his cell before he faces the firing squad. The appeal, "Take advantage of this last opportunity to become registered before it is too late" sounds like the last call for dinner in the dining car. This is a warning before it is too late, for the unregistered clerk to escape from his present bondage by taking a *comprehensive* course in *all* branches of pharmacy and the *allied sciences* by planking down \$150 (after January 1, 1946, \$250). The course must be completed before January 1, 1948, since a college graduation law becomes effective at that time. This wail comes out of that state of glorious revolutionary history where for 150 years my ancestors have laid in her bosom (up around Northhampton) and whose capital is the intellectual hub of the universe. However, this seat of pharmaceutical learning is not in Boston. It, like the seat of empire, has westward made its way to one of the beautiful fertile valleys of the commonwealth. We are concerned about this appeal for a couple of reasons. If all eligible parties circularized in the middle west respond to the call it will take from our stores help which is sorely needed at this time. Those who take the course cannot come back to this region as registered pharmacists because they cannot qualify under the laws. On the other hand, if they all register in Massachusetts, that state will explode with the super ninety day wonders. It would seem to be a proper time for the druggists and thoughtful citizens and the lay press in Massachusetts to rise up and demand well trained pharmaceutical service as they did recently down Connecticut way.

On August 25, Mr. S. B. Penick, Sr., treasurer of the American Foundation for Pharmaceutical Education, addressed a letter to the deans of the colleges holding membership in the American Association of Colleges of Pharmacy with the specific request that they give careful study to the problem as to how the Foundation can best use its funds for the promotion of pharmaceutical education. The Editor, as dean of one of those colleges, on September 18, replied to that request and, thinking it may be of general interest, has taken the liberty to present it here. The reply reads as follows:

"I have your letter of August 25, and want to assure you that the work of the American Foundation for Pharmaceutical Education is one of the things that has been uppermost in my mind since the establishment of the Foundation. I am one of those who have complained most bitterly in the days gone by that immense sums of money which have been made in the various phases of the drug industry have gone to the support of hospitals and medical education and medical research institutions and to universities for general education, while very little of it has been given to the improvement of pharmaceutical education or the support of graduate work in our educational institutions. It has, therefore, been with a great deal of satisfaction that I have followed the work of the American Foundation for Pharmaceutical Education, for I believe men in all phases of the pharmaceutical industry are beginning to realize the importance of supporting pharmaceutical education and graduate training.

"For many years, also, I have felt that the greatest need in pharmaceutical education was to prepare men on the graduate level for the professional teaching and research fields. I have always thought that it is the primary business of the state to establish and support undergraduate teaching institutions in pharmacy just as they do in medicine, law, in business, in agriculture, in teaching, and in the liberal arts. I think this is necessary for unless the public supports undergraduate training in pharmacy, it will not develop a pharmaceutical consciousness. This is evident in this midwestern region. I have been very much in sympathy with the Foundation's effort in awarding scholarships to undergraduate students if these scholarships are handled in such a way as to stimulate better scholarship in the undergraduate body.

My own experience in this university is that the Foundation scholarships are doing that very thing.

"Nevertheless, I think the great need is for the Foundation to give support to graduate work in the pharmaceutical sciences in order that we may produce men that will be creative and will stimulate the undergraduate body as well as those who are already practicing the profession. That is the real need, and the study which Dr. DuMez made for the Foundation which was published in the July number of the American Journal of Pharmaceutical Education supports that view. Therefore, I would like to see the Foundation's greatest effort at the present time directed toward the support, in the form of grants or scholarships, of scholarly and worthy young men with the express purpose in mind of preparing these men for careers in teaching and research and also to supply the same type of individual training for research in our great pharmaceutical and manufacturing research concerns.

"I am not one of those men who have deplored the fact that many of our best pharmaceutically trained men have been taken from our teaching institutions by industry, because I think this very thing has been an important factor in showing to industry that this type of man is what the industry needs, and these very same men have stimulated our colleges to direct their attention toward graduate and research work.

"I am of the opinion that the greatest service that the Foundation can render now is to award graduate scholarships to those institutions who are able to carry on graduate work, and I have to admit that they are lamentably few, but there are a number qualified to do so. They have the equipment and the teaching and research staffs. I think that if the Foundation's money is to be used wisely, an institution must show that it not only has the desire but the ability to train men along the lines which Dr. DuMez's study indicates. There are undoubtedly institutions where a grant from the Foundation would enable that particular institution to step up into this class. I believe it would be money very well spent if the Foundation could establish chairs for the express purpose of training men in the professional teaching and research fields. This, I think, would be an Utopian condition.

"Such a procedure would have to be developed, shall I say slowly? Certainly, it cannot be a mushroom growth. It would be necessary to feel our way along, and make the minimum number of mistakes. One difficulty just now would be to obtain properly qualified men for research scholarships and grants, because the war has reduced the undergraduate student body to a point where the number of graduates who will come out of it is very limited. With the ending of the war, there is evidence now that the registration in pharmacy is going to be tremendously increased. There will be some graduate students, but four years from now, the number will be greatly augmented. Then our real problem will be to have men who will be qualified to carry out a program on the graduate level.

"I think we will make a great mistake now if we have a shortsighted program. The thing that will appeal to the pharmacy student is what there is for him in the future, and certainly there are great opportunities in the pharmaceutical field if we prepare men for them.

"I do not know whether anything of what I have said will be of any practical help to solve the immediate program. I have felt all along that all of this postwar planning which we have been talking about in pharmaceutical education circles for two years would go to pot when the war ended. What we need now is not a lot of postwar planning or refresher courses, but postwar action in connection with a long-term program which will put pharmacy upon a sound basis equal to that of the other health professions."

Concerning Mr. Penick's request for helpful suggestions, a member of the Foundation Board, under date of September 25, wrote the Editor as follows: "I have just finished reviewing and summarizing the letters which Mr. Penick has so far received from deans of our colleges of pharmacy. The returns have been disappointing. Only a few deans have replied, and a telegram from Mr. Penick to the others has not as yet had much effect. You would feel that with a matter as important as the American Foundation for Pharmaceutical Education the deans would go out of their way to furnish Mr. Penick with the information he desires as promptly as possible."

All the Editor can say is that it would seem that there are many deans who are not able to evaluate the problems confronting pharmaceutical education and determine the important ones. Here we have a Foundation organized for no other purpose than to support pharmaceutical education asking help of the deans in determining how funds raised by the Foundation can be spent most wisely. If the deans have no suggestions as to how the money can be used to advantage, the question might easily and properly be raised—Why should the Foundation raise any funds?

This incident recalls some ancient history. Many years ago when the two year course was the major problem of the colleges of pharmacy. The dean of a great institution on the Atlantic seaboard said that if the pharmacy course should be increased to three years, he would not know what to give his students the third year unless it be a course in urinalysis. That remark is what led the writer at that time to say that the greatest need of pharmaceutical education was the funeral of some deans. Years have passed and a new crop of deans is in the saddle, but the poor response to Mr. Penick's appeal makes one wonder if the new generation has any more of a vision than the old. Perhaps we still need some funerals, including the writer of these lines.

A considerable amount of criticism has developed through the years directed toward the retail druggist because of his lack of support or perhaps I should say, indifference toward a pharmacy week celebration. Out of respect for many men who believe that pharmacy week has great potentialities I have played the game with them but always with an apologetic attitude toward my own conscience. As time goes on I find myself more sympathetic with the retail druggist who questions the wisdom of making his store look like a scientific and public health establishment one week in the year and then shoving that aspect of it in the background for the other 51 weeks, and that also is the attitude of the intelligent layman. Just recently one of the most distinguished citizens of my home town asked me how a man could have the nerve to advertise a drug store as a public health institution when half

of the store's window space was occupied with beverage liquor 52 weeks in the year.

But to go back to the retail druggist and pharmacy week. Pharmacy week can never keep pharmacy alive. It takes something more fundamental than a week of glamour—window dressing and radio speeches. Pharmacy furnishes the tools for the treatment and control of diseases. Pharmacy is to medicine what tools are to the automobile industry. If pharmacy had not been a necessity it would have disappeared a long time ago.

Many times in the recent months I have in these pages called attention to the hopeful signs in pharmacy. These, it is not necessary to repeat. The future of pharmacy is indicated by the present attitude of pharmacists themselves toward their profession. They view it with respect. They are concerned with the maintenance of its educational and professional standards. All over the land individually and in groups they have become concerned for the advancement of their profession. At last there is an educational program that has dignified their calling and enabled them to respect both it and themselves. Slowly but surely the character of drug stores are changing, the goal is worthwhile service and with worthwhile service there goes a living. Our problem now is to develop an educational program that will put pharmacy on a plane equal to the other health professions. When we have accomplished that, pharmacy week will be 365 days in length with no need of a special display to sell it to the public.

This week there came to the Editor's desk a prospectus which deserves more than a passing notice. It sets forth in retrospect and in prospect the need of a home for the American Association for the Advancement of Science, signed by Charles F. Kettering, president. For more than a quarter of a century the Smithsonian Institution has provided office space for the Association but the need of more room for both institutions has become so great that it is necessary for the Association to provide a home for itself. The front page of the folder carries a picture of the Smithsonian Institution and the back carries the picture of a series of "homes" in Wash-

ington, reading from left to right they are—The National Education Association; *The American Pharmaceutical Association*; The Brookings Institution; The National Gallery of Art, and The National Academy of Sciences. Below the picture is the legend, "Homes are more than structures—they are also symbols, recalling the hopes of the past, expressing the realities of the present, anticipating the opportunities of the future." We are a part of the American Association for the Advancement of Science, may we contribute our mite to the erection of its home.

There is no experience more delightful than to receive a letter in long hand with a bold, once seen, never to be forgotten script. There are many others who will enjoy a word from Dean Edward H. Kraus of the University of Michigan and with them the Editor will share that pleasure:
Dean Kraus writes:

"Since late in February 1945, I have been on Retirement Furlough. According to our regulations one retires automatically at the end of the semester in which one becomes 70 years of age. The last year 69 to 70 is, however, taken on Retirement Furlough, with full salary. I was 69 on December 1, 1944 and am now Dean Emeritus, but continue as professor of mineralogy until late in February 1946, but without duties, when I shall get the regular pension provided by the University. At present I am carrying on my scientific activities and with my colleague, Professor C. B. Slawson, I am devoting my time, of course on my own, to the revision of our book on 'Gem and Gem Materials.' I am delighted to be relieved of administrative duties in which I have been involved for 37 years.

"As you know, my interest in pharmacy continues, for it is an abiding interest. I continue my membership in the A.Ph.A. and read the various journals regularly, including the American Journal of Pharmaceutical Education."

Without intending to be a preacher, Dean Kraus has in these lines laid down a pattern which all retiring deans including the writer may well use if one wishes to continue to lead a happy, eventful and useful life. One of the highest

honors that can come to a faculty member of the University of Michigan was bestowed upon Dean Kraus when the University Research Club recently awarded him the Henry Russell Lectureship for 1945 for his outstanding work in the fields of crystallography and mineralogy. On February 20, 1945, in New York, at a special meeting of the Mineralogical Society of America, Dean Kraus was awarded the Roebling Medal which is the highest recognition that the society can give for distinguished service and meritorious achievement.

As an administrator, few men have had such a cosmopolitan experience as Dean Kraus. From 1908 to 1912 he was secretary of the graduate school of the University of Michigan. From 1911 to 1915 he served as acting dean of the summer session and as dean from 1915 to 1923. He was acting dean of the college of pharmacy from 1923 to 1933 when he became dean of the college of literature, science and the arts, the largest single administrative unit in the University. I hardly need to call attention here to the service he brought to pharmacy during his deanship. As a committee-man, as a member of the U.S.P. revision committee and as president of the American Association of Colleges of Pharmacy he rendered a service which only the representative of a great university and a distinguished scientist alone could give. For this service we shall be eternally grateful.

Recent months have seen the passing of two great figures in American Pharmacy, Leonard A. Seltzer and Dr. James H. Beal. Of their accomplishments others will speak. The Editor would not be happy unless he could add a word of appreciation to what men better qualified to speak have said. Dean Kraus said "The death of Leonard Seltzer was a great loss to pharmacy for he was truly a stalwart. He exerted wide influence in Detroit, and also in the state and nation." To me Leonard Seltzer will always be remembered as "Seltzer the Lovable."

Dr. Beal I shall remember as "The Scholar, Educational and Legislative," who contributed his great talents to the improvement of pharmaceutical education, organization, and practice.

Rufus A. Lyman

Gleanings from the Editor's Mail

Some criticism has been offered to the course described elsewhere in this Journal under the title "Theory and Practice can be Combined" on the basis that it is "wrong to give academic credit for work in drugstores."

I should like to point out that such criticism is obviously due to lack of information concerning the management of the course. It should be recognized that the more progressive schools are taking advantage of unusual educational opportunities, such as we have in Seattle, to use outstanding prescription pharmacies as laboratories. It is also obvious to any who care to really study the problem of education that many leading institutions grant credit for academic work in the plant, field or off-campus laboratory, that the movement is spreading, that it is most favorably received, and that the custom is most definitely established on sound principles of teaching.

If we can, without criticism, use our students in college hospital dispensaries, why cannot we use them in professional pharmacies on the same academic basis? Colleges of education give similar cadet training in the adjacent public schools. Examples can be cited in practically every field of learning.

University of Washington

October 2, 1945

L. Wait Rising

I have returned to the staff of the school of pharmacy after a year's leave of absence during which time I was with the War Production Board. During this period I was associated with the Chemicals, Drugs and Health Supplies Division of the Office of Civilian Requirements. I was a member of the pharmaceutical, insecticide and cosmetic chemical unit of which Dr. George W. Fiero was Chief. The work of the unit was devoted to estimating civilian requirements for essential drugs or chemicals in the above group. After the essential requirements were established, it was the purpose of the office of civilian requirements to protect this level of supply for civilians under all conditions. It is of more than passing interest to note that pharmacists played a major part in the operation of this Division as well in the Drugs and Cosmetics Branch of the Chemicals Bureau. Many of them came from the field of pharmaceutical education such as Dr. Robert P. Fischelis, George W. Ficro, University of Buffalo, Dr. Joseph B. Burt of Nebraska, J. Solon Mordell, Syracuse University Hospital, Henry Heine, Purdue Extension and John McDonnell of the Philadelphia College of Pharmacy.

The experience gained in broadened interest, and the conviction firmly established that pharmacy and pharmacists can and do play an

important part in protecting the health of the civilian population were the chief benefits derived from the stay in the nation's capital.

University of Wisconsin

October 1, 1945

Louis W. Busse

Rather than write the customary school news, I thought perhaps I might report to you personally what is happening here and you can print what you think is fitting. In any event I should feel it a privilege to keep you personally informed.

The University is critically overcrowded as far as space is concerned—what school isn't. But the University is most anxious to do all it can for its new college of pharmacy. And so far it has. We have a delightful office in Science Hall that opens directly on the campus. We are neighbored by the engineering, biology, chemistry, and state public health buildings. Our building houses the mathematics department and the large science auditorium. Gradually we are getting the very best office furniture and office equipment as it becomes available. My secretary is doing an admirable job.

We have been on the job nearly four weeks, and I'm happy to report that all the preliminary spade work necessary to get ready for the incoming students has been done. We are established on the campus, general publicity throughout the state by means of a formal announcement in every daily newspaper in the state has been run, the same ad in three state magazines will appear in their October issues. By this time you have received our announcement in the mail. This went to every college, board, state association, pharmaceutical press, pharmaceutical industry, and every high school and college of the state of New Mexico.

As a result of the publicity the pharmaceutical press has rendered this school, in addition to the efforts of the druggists and the University officials, we have had about forty inquiries from prospective students. So far four students have informed me of their coming November first. Several have sent in their credentials. I feel certain we will have at least ten students by November first. Dean Knode is sure we will get twenty-five.

So far our policy is to offer only freshman work, and all students who enter with advanced standing will do so under their own risk if they hope to finish in three years. There is a large backlog of students here with college credits who would have started pharmacy in the first place. In fact, several druggists I have met went to college but not in pharmacy. Our other problem is that of students who have not graduated from high school. Then we have a number of veterans on the string. In general the student situation looks better than I had anticipated.

But the most gratifying and inspiring experience I am enjoying

is the enthusiastic support I'm getting from the pharmacists. My nucleus here in Albuquerque numbers three. They are the president and secretary of the state association and the chairman of the association's committee for the college. They are all "swell guys" who are anxious for this college to succeed. They are contributing of their time and energies generously. We have launched a scholarship campaign. To accomplish the results we anticipate, we spent two days calling on the stores of Albuquerque, and out of sixteen contacted of a total of twenty stores we obtained thirteen \$100 pledges or outright contributions. Yesterday we had a luncheon meeting in Santa Fe and picked up \$600 more. During the next four weeks we will travel the state. And this is a big state. If I live through this, I'll surely be able to survive a great deal in the future.

The University officials have given a great deal of thought to permanent quarters for pharmacy, and their preliminary suggestion looks mighty good to me. The plan is to try and get a badly needed new chemistry building and turn over the present chemistry building to pharmacy. The building is an excellent one, and if this plan turns out our college will be housed better than many of our well-established pharmacy schools in the country.

The president of the University, Dr. Wernette, has just come. He is young and energetic. My first impressions are good. He has given me the "green light" and assured me that my successes will be his. I made clear that I am a realist but enjoy optimism. Since Chancellor Malott of Kansas and he are personal friends, I had a good reception. Mr. Malott gave me a good send-off. Also Dean Lawson of Kansas and Dean Knode are personal friends. Here again was the source of a good start. My only wish is that I am given the strength, courage, and wisdom to carry on.

I have made application to Dean DuMez for accreditation of our first year. This University is on the threshold of becoming a great institution. Most every department is being staffed and restaffed, all with accreditation as their immediate goal. The faculty is all young and virile. Each knows the success of the other is important to his own success. So, really, the college of pharmacy is not alone as a new baby on the campus even if we have just arrived. Of course this will mean a battle for funds, but at least there is no "priority" here.

This pretty well sums up my first month on the campus. The place is chuck full of Wisconsin people and we are making friends. How nice it is to meet home folks so far from home.

The University of New Mexico
Albuquerque,
September 28, 1945

Roy A. Bowers, Dean
College of Pharmacy

Notes and News

University of California, College of Pharmacy.—Three members of the faculty have received promotions. In each case the advance has been from the rank of assistant professor to that of associate professor. Those receiving promotions are: Dr. Robertson Pratt, pharmacognosy and plant physiology, Dr. John F. Oneto, pharmaceutical chemistry and pharmacy, and Dr. John J. Eiler, pharmacy and biochemistry. Although the curriculum in this college is as it was in the pre-war days, the faculty has given considerable attention to alterations along three lines. Prior consideration has been given to the formulation of a refresher-training program. The thinking along this line is to be put into action shortly in the form of an "Extension Division" program offering refresher training in the several divisions of pharmaceutical education. It is proposed that such a program will become a regular part of the teaching activities, and, as such, will function in post "post-war" days as a means of helping pharmacists to keep abreast of recent developments. Much work has been done in an optional pharmacy curriculum requiring five or six years for completion. Of more immediate interest is the thought given to changes in the present four year curriculum. Such changes as may be made are more in the nature of a change in emphasis than a change in curriculum. Although we as yet have no reliable data the indications are that the next entering class will be somewhat larger than the last.

University of Colorado, College of Pharmacy.—At the October commencement, three candidates received the Bachelor of Science in Pharmacy degree.—Twelve new students registered for pharmacy in the summer term.—Dr. Joseph B. Sprowls has resigned as assistant professor of materia medica and on November 1, will take up work in the school of pharmacy of the University of Buffalo as professor and head of the department of pharmacy. Dr. Sprowls has served on the staff of the University since 1932. He is a member of Sigma Xi, Phi Delta Chi and the local and national pharmaceutical societies. He is the author of many educational and scientific papers and a co-author of the text *American Pharmacy*.

Ferris Institute, College of Pharmacy.—The total registration at the beginning of the fall term was 50, an increase of 135 per cent over a year ago.—Many books have been added to the library during the past months.—Plans are in progress to increase library space which will enable the pharmacy library to be segregated but still kept in connection with and adjacent to, the general library.—The school has been approved for G. I. training.—Dr. James A. Fraser, a graduate of Columbia University, recently released from the Canadian Air Force where he served as an instructor in navigation with rank as Captain, will teach bacteriology and also serve as dean of men.—The Board of Trustees has authorized an additional instructor in pharmacy.—Changes have been made in the curriculum in keeping with the last revision of the syllabus and will become effective at the beginning of the winter term.—The student branch of the A.Ph.A. has a membership of 35

and an excellent program has been planned for the year with speakers representing the profession, visual education and social activity.—The Gamma Kappa chapter of Kappa Alpha Phi, which was disbanded during the war, has been reorganized.

University of Florida, School of Pharmacy.—Dr. Paul A. Mattis, formerly assistant director of pharmacological research for Sharpe & Dohme has been appointed head professor of pharmacognosy and pharmacology.—Jack K. Dale has been awarded a graduate scholarship. The scholarships of the American Foundation for Pharmaceutical Education have been awarded to James D. Hendrix and Florida May Carlson.—Dr. P. A. Foote presented an exhibit consisting of literature and products of the accredited Florida Formulary as well as those of the USP and NF before the annual post graduate short course for physicians at Jacksonville during the week beginning June 25. About 200 physicians were in attendance.—The Florida State Board of Pharmacy has provided funds for the construction of the work of the Bureau of Professional Relations for the year 1945-46.—Miss Elizabeth Tousey has resigned as secretary to the director and has been succeeded by Mrs. Clara N. McPherson.—The entering freshman class is considerably larger than last year. As is their custom, annually, the Ladies Auxiliary of the Florida State Pharmaceutical Association has donated \$50 for library purposes.

Fordham University, College of Pharmacy.—The new freshman class admitted September 24 was the largest since Pearl Harbor, and of the 48 new students 12 are women and 14 are veterans.—Plans for "refresher" courses for the returning veteran have been formulated.—Father Martin J. O'Shaughnessey S.J. recently returned from the Philippines after being liberated from a Japanese concentration camp where he had been interned for three years. Speaking before the students, he described the prisoners' life there and how he and his companions were released shortly before the time appointed for their execution.—The first meeting of the fall term of the student branch of the A.Ph.A. was held September 21, 1945. Committee reports were given followed by the election of officers. The student branch played an active role in preparing the ground work for the establishment of The Regional Board of the Metropolitan New York Student Branches which includes the four colleges in New York City and the Rutgers University College of Pharmacy in Newark.

The George Washington University, School of Pharmacy.—Dean W. Paul Briggs, after over three years of active duty in the Navy, resumed his academic duties on September 1, 1945. Two other members of the staff are still in the service, Lt. L. G. Gramling AUS, is at present stationed in Europe and Lt. C. W. Bliven, USNR, is on duty at the Bureau of Medicine and Surgery of the Navy in Washington, D. C. Mrs. Marjory B. Bliven, who in February was appointed instructor in pharmacy is continuing in that capacity during the present academic year.—During the summer three buildings were remodeled, primarily for pharmacological research.—Our present staff is composed of Miss Emily Godfrey, associate on pharmacology and Mrs. Donald Riley, Mrs.

Harlan Durand, Miss Rebecca Hellerman, Mrs. Paul Combs, and Miss Lucy Wild as research associates.—The present plan is to bring all pharmacy work into one structure by February 1946.—Registration for the fall term has just been completed. Among the new students are a few returned veterans.

University of Illinois, College of Pharmacy.—The enrollment for the present session is 155. There are 92 in the incoming class.—Dr. Herman Thompson, recently assistant professor of pharmacy at the University of Georgia has joined the staff as associate professor of manufacturing pharmacy.

State University of Iowa, College of Pharmacy.—N. F. Sorg, resigned as instructor in pharmacy October 1, in order to operate a drug store which he purchased in Marion, Iowa. His place is being filled by Irwin J. Lage, '41, who was recently discharged from the armed forces where he has been engaged in pharmaceutical work and has a wide experience in compounding for hospital use.—Delphia L. Donner, '42, associate hospital pharmacist, has resigned. Her future plans are indefinite.—Mary Jane Vande Voort, '45, is interning in the university hospital pharmacy the current year.—The Jones prize to the second year student attaining the highest rank in pharmaceutical laboratory work last year went to Charles Schillig. The Merck prize to the senior student attaining the highest rank in dispensing was awarded to Elder O. Haines.

University of Kansas, School of Pharmacy.—Dr. Donald C. Brodie has been appointed associate professor of pharmaceutical chemistry. He comes to Kansas from the University of Rochester School of Medicine where he had been engaged in special war research in the department of biochemistry and pharmacology. He holds degrees from the University of Southern California and Purdue, and is a member of Sigma Xi, Phi Lambda Upsilon, and several national, professional and scientific organizations.—Frances Blair, 1944, has been appointed an instructor after six months training in the pharmacy of the hospital of the University of Michigan.—A special one semester course has been established for the returning alumni who have been in the armed forces. The course will include approximately five hours of new and non-official remedies, five of dispensing, and five in pharmacology, covering the action and uses of the newer remedies.—A total of \$3900. has been allotted in the last two years in addition to the regular budget for the purchase of laboratory equipment. Apparatus obtained include an electrically heated autoclave, analytical balances, a stainless steel ointment mill, and a new balopticon.—There are 37 students enrolled at present, 19 of whom are freshmen. There are 10 veterans.

Long Island University, Brooklyn College of Pharmacy.—Mr. R. C. Werner, 86, who died recently, was active in the affairs of the college back as far as 1892 when he was president of the Kings County Pharmaceutical Society and its college in its infancy. He served as trustee for many years and was active in such organizations as the National Association of Retail Druggists, the German Apothecaries Society, and the New York Veteran Association.—The memory of Prof. William

Weygandt is being perpetuated by an endowment fund granting a gold key annually to the senior student most proficient in *materia medica*.—The estate of Wilhelmina C. Siegert is providing scholarships to the extent of \$300 a year for the payment of tuition fees of worthy and needy students. The scholarships are established in memory of a brother and will be designated as the William Siegert Memorial Scholarships.—Prof. Ralph H. Cheney has resumed his teaching program after a leave for the purpose of conducting research at the Marine Biological Research Laboratories at Woods Hole.—The fall session opened in September with an enrollment of 90 students.—Six students were graduated at the last commencement and John J. Kramer was awarded the College Gold medal for proficiency.—Charles J. Heimerzheim, instructor in chemistry, has resigned to assume his new teaching duties at the Mary Immaculate Hospital in Jamaica.

Loyola University, School of Pharmacy.—Very Reverend Thomas Joseph Shields, S. J., was inaugurated as president of the University on August 2, 1945, succeeding Reverend Percy Albert Roy, S.J.

University of Michigan, College of Pharmacy.—During National Health Aid Week Profs. L. F. Worrell and E. L. Cataline delivered radio addresses on the contribution of pharmacy to national health. Profs. H. B. Lewis and C. H. Stocking are scheduled to deliver similar addresses during National Pharmacy Week.—A preliminary check indicates that the enrollment for the fall semester, which begins November 1, will be markedly greater than that of the past two or three years. A considerable percentage of the increase expected will be due to the enrollment of a number of discharged veterans.

University of Montana, School of Pharmacy.—During Dean Mollett's service at the University over a period of a quarter of a century, 310 men and women have been graduated in pharmacy. At least 70 of these now own their own stores and more than 200 graduates reside in Montana. Dean Mollett has made extensive studies on the drug plants of Montana and has developed a drug plant garden which is useful as a laboratory and furnishes material for class study and research.—Lt. Comdr. James A. McCain, formerly with the Navy bureau of personnel with headquarters at Washington, D. C., became the eighth president of the University on September 1, 1945.

University of North Carolina, School of Pharmacy.—The fall term began October 29. Due to the Navy V-12 program at the University, the school has been operating during the war on a trimester basis with terms running from July-November, November-March, and March-July. Recently the University has decided to return to the pre-war quarter system, hence it is necessary to operate a short term before Christmas in order to get back to the quarter plan the first of next year. It is the consensus of opinion that the change cannot be brought about too soon, since it will enable all concerned to return to the normal and well established routine. The term began with about forty-five first year students, several of whom are veterans.—The school of pharmacy in collaboration with the Duke Hospital and the Watts Hospital

at Durham, the Charlotte Memorial Hospital at Charlotte, and the Rex Hospital at Raleigh, is offering, through the War College of the University, a course of twelve months in hospital pharmacy. This course is open to registered pharmacists or to graduates with the B. S., degree in pharmacy. At present the course does not carry graduate credit, but is designed instead to better equip pharmacists who are interested in becoming more proficient in hospital practice. It is thought likely that a certificate will be presented to those persons completing the course satisfactorily. Further information in regard to this course may be obtained by writing to the dean.—Dr. Marion L. Jacobs was appointed assistant dean of the school at the beginning of the summer term. He will work in close co-operation with Dean Beard during the coming year. There are no changes in the faculty.

University of Nebraska, College of Pharmacy.—A grant of \$259 from the University Research Council has been received for the purchase of apparatus for the study of cellular physiology.—The freshman class numbers 20. There are several service men.—The American Foundation for Pharmaceutical Education Fellowships have been awarded to Frances Longfellow, Helen Ullom, Esther Anderson and Charlotte Cox.—A grant of \$300 from the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation for work upon the Relation of Sex to Drug Action has been received.

University of Oklahoma, School of Pharmacy.—A course in the history of pharmacy is being offered for the first time, to freshman.—Material for a museum of military pharmacy is being assembled and is located in a hallway in the pharmacy building. Dr. Ralph Bienfang is making an appeal to all those having any connection with military pharmacy in any way to send in any material that has played a part in military pharmacy.—At the first meeting of the year of the Oklahoma University Pharmaceutical Association various members of the faculty explained to the new students the significance of the different undergraduate organizations in the school.—The enrollment is double that of last year.—Margaret Hildebrant and Jean Brown are new graduate students. Miss Brown has been appointed a student assistant.—American Foundation for Pharmaceutical Education scholarships have been awarded to Ovetta Rackmore, Louise Pope and Freda Walters.

Oregon State College, School of Pharmacy.—Dr. John W. Nelson, who has served on the instructional staffs of the universities of Florida, Georgia and Purdue has been appointed associate professor of pharmacology and pharmacognosy. Herman C. Forslund formerly on the faculty of the college of pharmacy of the University of Idaho has been named assistant professor of pharmaceutical chemistry.—Prof. A. Zieffle, who has been on leave of absence for the past year, returned to the campus at the beginning of the fall term as dean emeritus.—Prof. Frank R. Henry returned September 8, from Purdue University where he was conducting a special study in manufacturing pharmacy.—Registration has been materially increased by the enrollment of a freshman class of 25 and the return of former students recently discharged from the service.—Barbara Bradshaw, Betty Kizer, Robert Morris, and Beverly Schrunk are the recipients of scholarships from the American Founda-

tion for Pharmaceutical Education. Natalie Bunn and Virginia Downing have received grants from the H. D. Dietrich Scholarship Fund; Mary Catherine O'Neill was awarded the Frank Nau scholarship and Bethella Sherman received the one given by Gilbert L. Conner.

Philadelphia College of Pharmacy and Science.—The 1945 entering class was the largest in recent years. Fifteen per cent of the new students are returned veterans.—Scholarships sponsored jointly by the college and the American Foundation for Pharmaceutical Education have been awarded to Sara Agin, Helen Beal, Paul Butash, Helen Wasylenko, Ida Tosoni, and Harry Ginsberg.—The graduate school, which was closed early in 1942 because of wartime stringencies, has been reopened and graduate work is being offered in pharmacy, bacteriology, and biology.—Dr. J. I. Feinman has returned to his civilian practice and teaching in the department of pharmacology after having spent the war years in the public health service.

University of Pittsburgh, College of Pharmacy.—Dr. Edward C. Reif has been appointed dean of the college.—Drs. Stephen Wilson and Frank S. McGinnis have been promoted to full professorship rank in pharmacy. Dr. McGinnis is also the pharmacist for the University Medical Center.—Dr. Kenneth L. Watson, a fellow in the department of research in pure chemistry in Mellon Institute has been named a special lecturer in pharmacy.—The enrollment is double that of last year. Veterans constitute 25 per cent and women 40 per cent of the matriculants.—Tim Lucum, '38, is now in the Army in England and is working in a chemist shop as a part of the Army's educational program.—Vincent P. Loebig has been appointed an assistant in the pharmacy laboratories.

Purdue University, School of Pharmacy.—The Alpha Beta Chapter of Rho Chi was installed on July 18, by Dean Glenn L. Jenkins. The charter members included three undergraduate students, Cleonice DeKay, Margene Fawbush and Betty K. Job, and the following graduate students, A. E. Jarvia, N. W. Merrick, H. G. Lamb, Ke-Chuan Ke, Yuen-Fu Cheng, R. K. Thoms, J. W. Nelson, W. E. Van Pelt, M. L. Neuroth, I. Danieleson, S. Nagnusson, J. E. Wolff, K. M. Linn, and Jane Gass. Faculty charter members were H. L. Kendall, H. G. DeKay, C. J. Zufall, J. E. Christian and Fred Semeniuk. Other members of the society present at the installation were: Dean and Mrs. G. L. Jenkins, Dr. C. O. Lee, Dr. L. D. Edwards, Dr. L. C. Keagle, R. W. Elkas, F. R. Henry, and M. Jeanne Noonan. Officers of the chapter are Mr. Merrick, president; Mr. Elkas, vice-president; Mr. Lamb, treasurer, and Miss Noonan, secretary.—A recent survey showed 14 per cent of the pharmacy graduates now in the armed forces are commissioned officers.—Prof. H. L. Kendall discussed the subject of prescription pricing before the South Bend Pharmacy Club at its monthly luncheon meeting on September 19.—Dr. John Edward Christian, Kappa Psi, Phi Lambda Upsilon, Rho Chi, and Sigma Xi, who has held a post-doctorate fellowship and has been engaged in special research, has been appointed assistant professor of pharmaceutical chemistry.

Rutgers University, New Jersey College of Pharmacy.—Dr. R. A. Deno who has been serving as a Captain in the Sanitary Corps of the Army

in the Pacific is back in the United States and expects to be discharged soon and return to his departmental work.—President Robert C. Clothier addressed the pharmacy faculty and students on October 3.—Prof. S. W. Heimlich has been assisting for a number of months, teaching courses in physics, incidental to the A.S.T. program at New Brunswick.—A new term began on July 23, with 53 freshmen, 28 sophomores, and 21 seniors. There were no juniors because of the accelerated program.—Any returning veteran, whose college work was interrupted will be permitted to attend as an auditor any courses which will be helpful to him as a review to resume his work later where he left off. No changes in curriculum have been made so far to meet the demands of returning servicemen, but we are ready to do so if and when there is need.—A seminar course is being planned under the auspices of the Northern New Jersey Branch of the A.Ph.A. similar to the program given last year which was well attended by pharmacists, physicians, faculty, and students. The lectures are to be given by men prominent in their respective fields and cover such subjects as vitamins, hormones, sulfa-drugs, and antibiotics.

Medical College of the State of South Carolina, School of Pharmacy.—The total enrollment is 31. The freshman class numbers 19, three of whom are girls and there are several veterans among the men.—The curriculum is now back on a normal basis.—Dr. Frank LeJeune Parker, who had completed 49 years of teaching in the department of chemistry, died suddenly in late August at his summer home in Hendersonville, North Carolina. Professor John C. Aull is now acting head of the department.—With the increased enrollment members of Kappa Psi fraternity have revived the local chapter and have acquired a house near the college.—New equipment, which includes new prescription scales and specially designed individual prescription units, with individual specially labelled containers, is being installed in an attempt to modernize the dispensing laboratory.—The Walgreen Drug Stores, through the American Foundation for Pharmaceutical Education, have given \$500 to the school, which has been used to award five \$100 undergraduate scholarships. These with the scholarships given by the Foundation, the Greer Wholesale Drug Company of Charleston, and the Charleston Retail Drug Association, makes eleven scholarships available for undergraduate students.

South Dakota State College, Division of Pharmacy.—Enrollment is 75 per cent greater than in 1944-45, the largest increase being in the freshman class. Four veterans with periods of service ranging from 36 to 56 months are among those enrolled.—Mrs. Mildred Jarratt, 1943, who joined the faculty last year will again teach pharmacognosy and practical pharmacy. She will also teach pharmacology to students of nursing education.—The South Dakota Pharmaceutical Association scholarship was awarded to Darlene Hackett; the South Dakota Board of Pharmacy scholarship, to Patricia Procknow; and a \$100 scholarship given by an anonymous friend of the Division of Pharmacy was awarded to Beryl Heideman.

St. Louis College of Pharmacy.—At the June meeting of the College Association it was voted to change the name to the St. Louis College

of Pharmacy and Allied Sciences. The change was approved by court action on July 20.—New appointments to the Board of Trustees are Dr. Charles W. Duden and Franklyn R. Herschner. They take the places of Fred Sultan and Alfred W. Pauley, recently deceased.—The freshman class numbers 48, 18 of whom are ex-service men and ten are women. Twenty sophomores, 9 juniors, and 17 seniors bring the total to 94, an increase of 50 per cent. Of the total, 31 are ex-service men and 24 are women.—Eleven seniors were graduated on October 1.—Dr. Charles W. Duden, professor of physiology and pharmacology since 1930 resigned in order to devote his entire time to medical practice and clinical teaching at Washington University. He is succeeded by Dr. Franz Steinberg who had his medical training at the University of Bern, Switzerland.—Of the nearly 400 graduates and former students in the armed forces, 9 are known to have given their lives and one is missing.—The Student branch of the A.Ph.A. continues to hold worthwhile meetings and to publish its news letter,—“The Capsule.”

Temple University, School of Pharmacy.—For the current year Martin Gelber has been awarded the Sharpless-Handler grant and Vincent J. Ferrio and Leslie Schwartz are the recipients of the four-year scholarships awarded by the alumni association of the pharmacy school.—The American Foundation for Pharmaceutical Education scholarships have been awarded to two outstanding members of the freshman class, Patricia H. Rusby and Vincent C. Mecca.

Medical College of Virginia, School of Pharmacy.—Eleanor Booth, a senior who has finished all requirements for graduation except residence, has been elected to Rho Chi and is on a research project for this quarter.—The faculty and senior class attended a streamline, one day meeting of the Virginia Pharmaceutical Association held in Richmond on October 1.—There are eleven students in the senior class.—Dr. Herbert McKennies, formerly of the Ciba Pharmaceutical Products, Inc., and Cornell University has been appointed assistant professor of chemistry.—Prof. Frank Pitts now a major in the Army, expects to return January 1. Dr. R. D. Hughes, now a commander in the Navy, will return to the department of biology December 15, and Dr. R. Blakwell Smith, Jr., will take up his new duties on December 1.—Henry Teshima, University of Nebraska, '45, has been appointed resident in pharmacy on the hospital pharmacy staff.—Dr. Miriam Clark, formerly with the Burroughs Wellcome Laboratories, is teaching analytical chemistry this term. She is also one of the chairmen in charge of the Ronnaevik Health Study, a TVA project.—The new physics laboratory with the most modern equipment is nearing completion.—Dean W. F. Rudd addressed District 4 of the Virginia Education Association in Norfolk on October 12, on the subject,—“Pig Iron and Watch Springs.”—Dr. M. L. Neuroth, Purdue '45, has been appointed assistant professor of pharmacy.

State College of Washington, School of Pharmacy.—The fall enrollment totals approximately 100, including more than 50 freshmen.—The Lederle Research scholarship has been awarded to Charles F. Martin for the second time.—A retail pharmacist in the state has offered to assist anonymously, in paying the expenses of a deserving pharmacy

student for four years.—Elwyn Suetmann, a retail pharmacist of Seward, Alaska, has given a sum of money to establish an undergraduate pharmacy scholarship.—Word has been received from most of the men in service that they expect to return to complete their training after they are discharged.

University of Washington, College of Pharmacy.—Dean Emeritus C. W. Johnson has retired from active teaching and will devote his time to the advising of pharmacy students.—Dr. Louis Fisher has been promoted to the rank of professor of pharmaceutical chemistry. Dr. Elmer M. Plein, to associate professor of pharmacy and Dr. Louis Anigoni to assistant professor of pharmaceutical chemistry. Dr. Anigoni has been acting as assistant state chemist and food, drug and cosmetic inspector for the state department of agriculture. His work has consisted principally of adopting methods for testing the vitamin content of enriched breads. He is also connected with the control of labeling, packaging, manufacture and adulteration of food, drugs, and cosmetics.—Dr. Edward L. Turner has been appointed dean of the new medical school, and Dr. E. M. Jones, of the new dental school. Neither division, however, will begin active instruction before the fall of 1946.

Western Reserve University, School of Pharmacy.—Dr. Arthur Paul Wyas, formerly professor of pharmacy at the University of Buffalo was appointed Dean of Pharmacy, effective September, 1945, succeeding Dr. Franklin J. Bacon.—During Dean Bacon's administration considerable new mechanical equipment has been added to the hospital manufacturing laboratory, many books were added to the library, and some changes and improvements made in the curriculum. The latter includes a one semester course in biology and two of pharmaceutical economics. The courses in pharmacology, pharmacodynamics, toxicology and bioassay are now being taught in the medical school where the department of pharmacology has been completely reorganized. Additional courses in other schools of the University have been listed in the pharmacy bulletin to allow the pharmacy student a better selection of elective and optional courses.—The Northern Ohio Druggists' Association and the Western Reserve University, School of Pharmacy Foundation which so successfully supported the school through its first phase,—that of survival through the most trying years, has now launched on a second phase,—the problem of organizing a drive for funds to house the school in a new building with adequate facilities and equipment.—Dr. Bertha Bacon with the doctorate from Purdue has been appointed an instructor in pharmacy.—A total of 56 students are enrolled for the fall session. Of the 26 new students, 16 are men, 10 are women.—Rosalie Ann Hoffman, from the University of Toledo and Edna Ortiz Martinez from the University of Puerto Rico, are enrolled in the graduate school for the master's degree in hospital pharmacy. The newly organized student branch of the A.Ph.A. has 16 members. Dr. Eugene Still, Director of research for Strong, Cobb and Company addressed the first meeting of the group on the subject "From Raw Material to Finished Product," discussion of vitamin tablet manufacturing.—At the second meeting, Dr. Lawrence Peters, instructor in pharmacology spoke on the subject, "Drug Therapy and Research in Tropical Diseases."

Miscellaneous Items of Interest

Memorials

LEONARD A. SELTZER

"Though lost to sight, to memory dear Thou ever wilt remain."
—George Linley

All who were privileged to work with the late Dr. Leonard A. Seltzer eventually recognized his unusual endowment of character. He was a fundamentalist without bigotry. His entire professional career was founded upon a philosophy sound in principle and effective in action. He was possessed of the rare type of mind which was capable of rendering unimpeachable judgment. His unique ability to analyze accurately each situation as it arose was always a source of astonishment to all with whom he worked. Once his convictions were established they served as guide to planned objectives. However, he was extremely tolerant of another's opinions even when these were at variance with his own ideas. This did not lead him to compromise with right or to accept wrong because he might derive therefrom a personal advantage. He spent his store of energy freely in behalf of his chosen vocation, professional retail pharmacy. His interest in everything pertaining to his profession never lessened even after his strength began to wane. Whatever task he undertook, he assumed all the responsibilities necessary for the completion of it. He had an orderly mind governed by a good character.

The Seltzer Apothecary Shop reflects the attributes of the man who built it. It has gained an international reputation. Frequently foreign pharmacists and pharmaceutical scientists, when in Detroit, visited his store as a major point of local interest. For fifty years it has set an example of a functional pharmaceutical health service not surpassed and seldom equalled any place. Seltzer the Pharmacist brought to his profession a dignity of service, a soundness of training, a philosophy of practice, which set a worthy goal for his contemporaries.

In reviewing the life of Dr. Seltzer one finds that his activities were not confined solely to the professional field in which he had gained such an enviable reputation. Seltzer the citizen was recognized by his neighbors as a good husband, a devout churchman, and a community leader. He served his church, the oldest protestant church in Michigan, the Central Methodist, as this denomination's representative on the Detroit Council of Churches. For the past thirty years he had been treasurer of his church (membership 2800). His pastor told the writer that he considered Leonard A. Seltzer as one of Detroit's outstanding citizens. The measure of regard of such a man is the great feeling of loss experienced by his community upon his passing. His finest memorial is the memory of his example. His most enduring influence is the fine service he rendered to his profession, educationally, scientifically, and ethically.

Roland T. Lakey

JAMES HARTLEY BEAL

The death of James Hartley Beal brings to a close the earthly career of one of American Pharmacy's most commanding figures. Dr. Beal was first and foremost an educator in the broadest sense of that term. Not only did he teach pharmacy to undergraduates in his day as a professor at Scio College and later at the University of Pittsburgh, but he also became the first editor of the *Journal of the American Pharmaceutical Association* and good editors are always educators with a vast student body. Dr. Beal was a good editor. His editorials breathed sincerity and they voiced opinions and marshalled facts.

His reader audience covered a large field and he influenced them by his logic, his forthright style and his great fund of information and experience.

Dr. Beal was also one of those rare combinations of men who could talk as well as he could write. Before an audience of pharmacists or physicians or laymen he was completely at ease and never at a loss for the proper word or phrase to convey the right shade of meaning. His annual formal addresses before the conventions of the N.A.R.D. were looked forward to by all who attended these meetings. His was one address on the program that nobody wanted to miss. And at the meetings of the American Pharmaceutical Association it was Dr. Beal who frequently brought order out of the chaos of conflicting ideas and often more conflicting expressions of opinion. He could always be counted on for a properly worded resolution. Thus, in a larger sense he continued to be an educator in American Pharmacy until the time when failing health curtailed his participation in the larger convention activities.

As Whelpley so aptly said of him "His life of usefulness is recorded in the proceedings of the A.Ph.A.; the drug journals, the minutes of the U.S.P. Convention; in the work of the N.A.R.D. and in almost every state association proceedings and in the memory and hearts of all who knew him." "The life of James Hartley Beal has made an impression on his day and generation which will be felt for the benefit of Pharmacy and the welfare of humanity for time to come."

Dr. Beal had not been able to participate actively in pharmaceutical affairs in recent years because of ill health and advanced age; he nevertheless retained an interest in pharmaceutical proceedings to the end of his life, which had been rich in accomplishments in many directions. At the time of his death, Dr. Beal lacked just three days of reaching his eighty-fourth birthday.

Born on September 23, 1861, in New Philadelphia, Ohio, where he received his early education, Dr. Beal became interested in pharmacy while still a boy through nature studies which included the collection of drug plants.

After leaving school he was employed in a retail pharmacy at Uhrichsville, Ohio, and later in Akron. While there he was tutored in chemistry and Latin at Buchtel College. He continued his studies at Scio College, receiving a bachelor of science degree in 1884, and

bachelor of arts in 1888. Later he took additional work in pharmacy and chemistry at the University of Michigan. Here he began his education in law, subsequently entering the Cincinnati Law School from which he graduated in 1886.

Other degrees included a Ph.G. from the Ohio Medical College, Doctor of Science from Mt. Union College, Doctor of Pharmacy from the University of Pittsburgh, and honorary Master of Pharmacy from the Philadelphia College of Pharmacy and Science.

Accepting the post of instructor in Scio College, Dr. Beal was soon given the chair of pharmacy and chemistry. He established a department of pharmacy in the institution which later became the Scio College of Pharmacy with Dr. Beal as dean. He was one of the founders of Pittsburgh Dental College, where he taught chemistry and metallurgy for many years, and was also professor of pharmacy at the Pittsburgh College of Pharmacy.

Although Dr. Beal actively practiced law for only a short time, he became a member of Ohio State Legislature in 1901 and throughout later years maintained a keen interest in pharmaceutical law. He was prominent in the development of the original Federal Food and Drug Act, the Harrison Narcotic Act and has taken part in the activities of various groups interested in legal aspects of the profession. He drafted model state pharmacy, narcotic and poison laws.

A life member of the American Pharmaceutical Association, Dr. Beal was chairman of the Section on Education and Legislation as early as 1897. The following year he became second vice-president of the Association and by 1904 was president. At the time of his death he was the oldest living past president. He served as chairman of the Council from 1902 to 1908, in 1910-1912, and again from 1923 to 1925.

In 1911 Dr. Beal was elected general secretary of the Association. While serving in this capacity he founded and edited the *Journal of the American Pharmaceutical Association* and continued as editor and general secretary until 1914 when he was forced to retire because of ill health. He has also held many other posts both as an officer of the Association and as chairman of various committees.

For thirty years he was chairman of the Board of Trustees of the U. S. Pharmacopoeia.

He had been president of the American Conference of Pharmaceutical Faculties, National Drug Trade Conference and Ohio State Pharmaceutical Association, and was a member of the American Chemical Society.

In recognition of his many services to the profession, Dr. Beal, in 1919, became the first recipient of the Remington Medal.

Dr. Beal is survived by his widow and a son, Dr. George D. Beal, assistant director of Mellon Institute and chairman of the A.Ph.A. Council, and a daughter, Nannie Esther Beal Starkey.

Robert P. Fischelis

A Citation*

Robert Philipp Fischelis:

Outstanding exponent and champion of the fundamental good which the profession of Pharmacy, quietly but insistently and consistently, brings to the public in its diversified services.

In your important work in the War Production Board, you gave your untiring zeal and your wealth of experience so that this nation might earn its day of victory and gain the peace to which Democracy is dedicated. Now, as leader of the thinking and the acting of the American Pharmaceutical Association, you are exploring and charting new ways to use the coming days of peace for the greatest good to humanity.

In recognition of your unflagging devotion to the public health and welfare, through honest, earnest pharmaceutical service, I now present you to President Ivor Griffith so that he may confer upon you, *honoris causa*, the degree of Doctor of Science.

New Books

American Pharmacy, by Rufus A. Lyman, M. D., Editor-in-Chief, Dean, College of Pharmacy, University of Nebraska; George Urdang, Ph. G., D. Sc. Nat., Director, American Institute of the History of Pharmacy; and an Advisory Board—Deans A. G. DuMez, Ph.D., School of Pharmacy, University of Maryland; Glenn L. Jenkins, Ph.D., School of Pharmacy, Purdue University; Rudolph A. Kuever, Ph.C., College of Pharmacy, State University of Iowa; Hugh C. Muldoon, D. Sc., School of Pharmacy, Duquesne University; Howard C. Newton, Pharm. D., Massachusetts College of Pharmacy; and James M. Dille, Ph. D., Professor of Pharmacology, University of Washington. Written by twenty-two specialists in the field. 1945. 540 pages. 197 illustrations. J. B. Lippincott Company. Price \$8.00

Even though I have only made a rapid and incomplete study of "American Pharmacy," I feel compelled nevertheless to record a few impressions of my pleasure and interest in this new book.

The size of the text-book makes it simple for students to hold open in their hands and thus easy to study. The material in pharmacy is adequate. The presentation and coverage are not only adequate but catholic since the book enjoys the authorship of twenty-odd modernly and widely trained specialists working in twenty institutions located in fifteen different states from California to Massachusetts and from Florida to Wisconsin. The language is clear and cogent and since it is authored by writers from literally all sections of the country it

* Given by Ambrose Hunsberger, Vice President of the College, on the occasion of granting the honorary degree to Dr. Fischelis.

has the variety that would be lacking in a one-man treatise. I might wish that a chapter on packaging and containers had been written by a commercial expert since the needs of the retail practitioner as well as the student are borne in mind and I also regret that a few typographical errors occur as, for example, the 8 fluid drachms dose given for solution of sodium arsenite instead of 3 minim.

But my real satisfaction is in the succinctness, meatiness, and lack of duplication found in the work of a score of authors. The reader discovers almost a different personality in each different chapter, but the Editorial Board has harmonized all chapters into a uniform style. The Part that happens to have the greatest appeal for me is number Three (Biologicals), but appealing also is section Nine of Part I (Bacteriological Technic). Perhaps I can best express my appreciation of the book as a whole when I say that I have just adopted it for my third year class and shall be employing it for my students henceforth. While I made a careful survey of the book, I naturally have not been able in this fortnight to give it the thoughtful review that using it will develop. It may be that I should record the fact that the book reached my desk October 5th; that I decided October 10th to adopt the text; and that this particular date is October 15, 1945.

J. Grover Beard

Medical Uses of Soap. Edited by Morris Fishbein, and written by nine collaborating authors, distinguished specialists in various fields of medical practice. 1945. 182 pages, 41 illustrations and colored plates. The J. B. Lippincott Company. Price \$3.00

A number of years ago when the December meeting of the American Association for the Advancement of Science was held at Columbus, Ohio, the Medical Section of that association had as their program a symposium on the subject of syphilis. The program ran for three days and three nights. On it were scholars from all parts of the world and every aspect of the disease was discussed from its historical origin to the control and cure. The point that most impressed the reviewer, who sat through the entire program, was the fact that every therapist who discussed the subject of control stressed the importance of cleanliness as a most important factor in treatment.

It is timely then that a monograph should appear on a subject so important as the medicinal uses of soaps and one which speaks with the final authority of our time. The book deals with the chemical and physical properties of soap, its manufacture and its medicinal value in various diseases of the skin, its allergic properties and contra indication conditions, its value in shaving and shampoo mixtures and soap hygiene. A chapter is devoted to the detergent action and value of soap substitutes. Each of the nine chapters closes with bibli-

graphy giving the important literature relative to the subject matter of the chapter.

Rumor has it that the entire edition has been purchased by the Procter and Gamble Company, and a complimentary copy has been received from them at this office. The Book should be found in every medical, surgical, dental, nursing, and pharmaceutical library. We trust future editions will be printed.

R. A. Lyman

Pharmaceutical Calculation, by Willis T. Bradley, A. M. and Carroll B. Gustafson, Ph. C., A. M., Instructors in the Massachusetts College of Pharmacy. Pages 283. Lea and Febiger, Philadelphia. 1945. Price \$2.75.

The well known text of the late Theodore J. Bradley which consisted largely of a collection of problems has undergone a thorough and deliberate change in scope and manner of presentation. The book consists of nine chapters and a valuable appendix covering nine additional topics. All explanations are notably clear and concise and the reviewer was impressed by the tendency to introduce the subject matter with simplicity, the use of the algebraic formula for temperature conversion being a noteworthy example. Examples for all types of problems are presented and answers to all problems appear with the problem. The answers, however, are not always given in measurable and weighable denominations. The text should be considered for use in the class room.

A. E. Schwarting

Fundamentals of Pharmacology, by Clinton H. Thienes, M.D., Ph.D. Professor of Pharmacology, University of Southern California, School of Medicine. First Edition. 1945. 497 pages. 36 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers. Price \$5.75

This book is the fifth in the Medical Students Series under the editorship of Fred C. Zappfe, Secretary of the Association of American Medical Colleges. The aim again has been to design a textbook for the student rather than a voluminous work; therefore, only as much material as it is believed the student has time to master is included.

In the present volume the pharmacology of the major groups has been covered; however, in view of the scope of the text, it has been necessary to limit the number of drugs discussed within each group, as noticed in case of the barbiturates; some of the substances used in the present war have not yet got into the text material, such as DDT as an insecticide; also, certain common poisonings, such as from cyanides and carbon monoxide are not included. It is however remark-

able how much the author has succeeded in placing before the student in such a compact volume, and stimulation to further study is given by including in each chapter definite references to specific studies of the past decade or so; discussions of these studies are used to bring to the student the most up to date conception of the value of a given drug and its mechanism of action. Also, stimulation to additional study is furthered by inclusion of a bibliography of major works at the end of each chapter. Another feature is the introduction given at the beginning of some of the sections stressing the general scope of what is to follow and including the historical aspects of the subject. Near the end of the book Dr. Thienes devotes a section to the highly important topic of the action of drugs on cells, and another one to pharmacy and prescription writing, in which for phragmatic reasons, he considers it more satisfactory to teach prescription writing in English, though a table of the most common Latin phrases is included. A set of excellent diagrams, tracings and illustrations, printed on a better grade of paper, has had to be placed in the middle of the book. Undoubtedly the stress of war conditions is also the cause of a few errors, such as the substitution of the coefficient, Oil: Blood for Oil: Water, in several places in Table 4. Moreover, the reviewer wishes that some mention of the relation of intoxication to automobile driving had been included, that Widmark's book had been included under alcohol references, that "chemists" or some such term had been used for "synthetic laboratories" on page 74 and that the L.D. 50 had not been stated to be the "smallest" dose, but the dose lethal to 50 per cent of the animals. As to other examples, some mention might have been made of Dragstedt's experiments which indicate that formation of chloraluric acid from chloral hydrate may not occur to the great extent formerly believed; of copper sulfate as an emetic and of its value in combination with iron in treating anemias.

However, these points can be corrected in the class room and teachers of pharmacology in the pharmacy colleges will be well repaid for their time spent in reading this new volume; perhaps it contains just the amount of material not only considered needed for the medical student, but to a large extent also for the up-to-date student in pharmacy.

H. G. O. Holek

Textbook of Pharmacognosy. By George Edward Trease, B. Pharm., Ph. C., F.R.I.C., F.L.S. Lecturer on Pharmacognosy and acting head of the School of Pharmacy in the University College of Nottingham. Fourth Edition. 270 illustrations. 10 maps. Pages 799. Bailliere, Tindall and Cox. 1945. Price \$7.50

The fourth edition of this work follows closely the general plan of previous editions, but is considerably enriched by additional material. The general arrangement of drugs under plant families is unchanged while the chapters dealing with the constituents of drugs and those

treating of microscopy have been rearranged and enlarged. The nomenclature in general is that of the British Pharmacopoeia although the volume includes most of the crude drugs and their products which are recognized by the Pharmacopoeia of the United States and the National Formulary. The material is divided into five parts. Part I, titled General Principles, includes an historical introduction, a chapter on London commerce in crude drugs and other chapters of introductory material. Part II, titled Drugs of Vegetable Origin and Part III, titled Drugs of Animal origin convey the authors personal style in the manner of presentation. Part IV, titled Chemistry and Part V, titled Microscopy are well written chapters on methods of evaluating drugs. The text is a valuable addition to the field of pharmacognosy and presents useful information to all members of any teaching staff in pharmacognosy.

A. E. Schwarting

The Chemistry and Pharmacy of Vegetable Drugs. By Noel L. Allport, F.I.C., Research Chemist, British Drug Houses, Ltd. Pages 252. Chemical Publishing Co., Brooklyn, N. Y., 1944. Price \$4.75.

The author has adopted a chemical system of classification for those vegetable drugs and their preparations which have chemical entities of known structure, and a therapeutic classification for those drugs which have one use and which cannot be readily grouped chemically. This system has its merits and the author offers sound arguments for his treatise. The headings include alkaloids, glucosides, resins, diuretics, carminatives, bitters, tannins, and others. The text is freely illustrated and will serve its purpose as a text or for collateral reading in pharmacognosy.

A. E. Schwarting

Pharmacy by Earl P. Guth, Professor of Pharmacy, Ohio State University. 1945. 24 pages. Bellman Publishing Company, Inc., Boston, Mass. Price fifty cents.

As one of a series of seventy five occupational booklets used in connection with guidance activities, this monograph on pharmacy presents factual information for the counselor or for the individual who may be seeking information in the choice of a career.

Statements concerning the future of pharmacy and the possibilities for both men and women in the profession are well written and expanded over previously published reviews. An outline of vocational opportunities for graduates of colleges of pharmacy is complete and enlightening. In a statement concerning the disadvantages of pharmacy, the author describes the peculiar position of the pharmacist with regard to errors made by the physician in the writing of prescriptions. This professional obligation should not be a disadvantage.

The pharmacist has training which better qualifies him to perform this essential duty.

Other topics which receive consideration in this monograph include the following: History of Pharmacy, Development of Pharmacy in the United States, Remunerations, Personal Qualifications, Scholastic Training Needed, Graduate Study in Pharmacy, The Cost of a Pharmaceutical Education, Glossary, National Associations and Principal Publications.

A. E. Schwarting

Organic Chemistry with Applications to Pharmacy and Medicine,

by Eldin V. Lynn, Ph.D., Professor of Chemistry, Massachusetts College of Pharmacy, Boston, Massachusetts, second edition, 1945, 355 pages, Lea and Febiger, price \$4.50.

This book is intended to fill the needs for a textbook in organic chemistry for the pharmacy student. The author is of the opinion that most of the textbooks on the fundamentals of organic chemistry are lacking in pharmaceutical and medical application. However it would seem to the reviewer that the fundamentals of organic chemistry are essential to a thorough understanding of pharmaceutical organic chemistry. This book would make an excellent companion text for a general course in organic chemistry intended for medical or pharmacy students or, as the author states, a textbook in a course in pharmaceutical organic chemistry offered in addition to the fundamental courses.

This textbook has 44 chapters and 355 pages. It covers the topics usually found in a general organic chemistry textbook and, in addition, chapters on volatile oils, alkaloids, glucosides, resins, dyes, proteins, and enzymes, which will be of special interest. A list of review questions is to be found at the end of each chapter. This book will be of interest to all instructors of pharmaceutical chemistry.

F. S. Bukey

Pharmacopoeia Londinensis of 1618 Reproduced in Facsimile, with

an historical introduction by George Urdang. 1944. 299 pages. State Historical Society of Wisconsin, Madison. Address orders to Henry Schuman, 20 East 70th St., New York City 21. Price \$12.00.

For the second time in two decades pharmacy is indebted to the Wisconsin Historical Society for the reproduction of an extremely rare book, the *London Pharmacopœia of 1618*. The first was the *Pharmacopœia Augustana* of 1564 published in 1927.

The late Dr. Edward Kremers often said that pharmacopœias were

chapters in the history of civilization. To read the history of the *Pharmacopœia Londinensis* by George Urdang, Director of the American Institute of the History of Pharmacy, is to convince one of the truth of Dr. Kremers' statement.

Forgetting for a moment the historical value of this reproduction the reviewer is impressed with the fact that it is a good example of the art of printing. Great credit must go to Dr. E. P. Alexander of the State Historical Society of Wisconsin and to the printers, Hammersmith-Kortmeyer of Milwaukee, for the format where both type and margins are pleasing to the reader.

Dr. George Urdang has written a scholarly and penetrating account of the history of this book. There were two "first" editions to this notable pharmacopœia. One appeared in May, 1618, the other in December of the same year. Why *two* first editions and why was the first one of these suppressed? Dr. Urdang has ferreted out the reasons most meticulously.

Pharmacopœias had appeared on the continent prior to 1618. The areas which they served were greatly restricted, but the *London Pharmacopœia* served the whole of England. It was certainly a result of the medical and pharmaceutical needs of the 17th century, a chapter as it were, in the history of the progress of the sciences of health. To be made aware of the fact, as the reader is, that by acts of Parliament in 1540 and 1553 the Royal College of Physicians of London was authorized "to survey and examine the stocks of apothecaries, druggists, distillers and sellers of waters and oils, and preparers of chemical medicines," one wonders why there was such a delay in the appearance of the *London Pharmacopœia*. With so many outlets for medicinals there was need for standards and regulations. If other reasons are necessary to explain why state standards, applicable to drugs were needed one only has to remember that nationalistic ideologies were developing.

The *London Pharmacopœia* of 1618 became the official guide of physicians and apothecaries until 1650 when the second improved edition appeared. It went through several revisions during the centuries following this time only to disappear with the issuance of the first *British Pharmacopœia* in 1864.

There is no point in my trying to recite dates and reasons pertaining to the publication of this book. In the first 81 pages Dr. Urdang has given to pharmacy an excellent account of professional history. It is very readable and thoroughly documented. Pages 85 to 289 constitute the facsimile which is artistic, historical, and professional. A very complete index is to be found on pages 293 to 299.

Where else in America, except in Wisconsin, would you expect that such a thorough job of historical research in pharmacy could be done? The profession is greatly indebted to the Wisconsin Historical Society, and its Director, Edward Porter Alexander; to Dr. George Urdang, and to the Hollister Pharmaceutical Fund for an unusual reproduction in the interest of pharmacy.

Charles O. Lee

INSTITUTIONS HOLDING MEMBERSHIP IN THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

New Jersey

Rutgers University, The State University of New Jersey, New Jersey College of Pharmacy, Newark (1928)
Ernest Little, Dean

New York

University of Buffalo, School of Pharmacy, Buffalo. (1939)
A. B. Lemon, Dean
Columbia University, College of Pharmacy of the City of New York. (1939)
Charles W. Ballard, Dean
Fordham University, College of Pharmacy, New York. (1939)
Charles J. Deane, Acting Dean
Long Island University, Brooklyn College of Pharmacy, Brooklyn. (1939)
Hugo H. Schaefer, Dean

North Carolina

University of North Carolina, School of Pharmacy, Chapel Hill. (1917)
J. Grover Beard, Dean

North Dakota

North Dakota Agricultural College, School of Pharmacy, Fargo. (1922)
William F. Sudro, Dean

Ohio

Ohio Northern University, College of Pharmacy, Ada. (1925)
Rudolph H. Raabe, Dean
The Ohio State University, College of Pharmacy, Columbus. (1900)
Bernard V. Christensen, Dean
University of Toledo, College of Pharmacy, Toledo. (1941)
George L. Baker, Dean*
Bess G. Emch, Acting Dean
Western Reserve University, School of Pharmacy, Cleveland. (1902)
Arthur P. Wynn, Dean

Oklahoma

University of Oklahoma, School of Pharmacy, Norman. (1905)
David B. R. Johnson, Dean

Oregon

Oregon State College, School of Pharmacy, Corvallis. (1915)
George E. Crossen, Dean

Pennsylvania

Duquesne University, School of Pharmacy, Pittsburgh. (1927)
Hugh C. Muldoon, Dean
Philadelphia College of Pharmacy and Science, Philadelphia. (1900)
Ivor Griffith, Dean
Temple University, School of Pharmacy, Philadelphia. (1928)
H. Evert Kendig, Dean
University of Pittsburgh, Pittsburgh College of Pharmacy, Pittsburgh. (1900)
Edward C. Reif, Dean

*On leave of absence.

Philippines

University of the Philippines, College of Pharmacy, Manila. (1917)
Mariano V. del Rosario, Dean

Puerto Rico

University of Puerto Rico, College of Pharmacy, Rio Piedras. (1926)
Luis Torres-Diaz, Dean

Rhode Island

Rhode Island College of Pharmacy and Allied Sciences, Providence. (1926)
W. Henry Rivard, Dean

South Carolina

Medical College of the State of South Carolina, Charleston. (1940)
William A. Prout, Director
University of South Carolina, School of Pharmacy, Columbia. (1928)
Emery T. Motley, Dean

South Dakota

South Dakota State College, Division of Pharmacy, Brookings. (1908)
Floyd J. LeBlanc, Dean

Tennessee

University of Tennessee, School of Pharmacy, Memphis. (1914)
Robert L. Crowe, Dean

Texas

University of Texas, College of Pharmacy, Austin. (1926)
William F. Gidley, Dean

Virginia

Medical College of Virginia, School of Pharmacy, Richmond. (1908)
Wortley F. Rudd, Dean

Washington

State College of Washington, School of Pharmacy, Pullman. (1912)
Pearl H. Dirstine, Dean
University of Washington, College of Pharmacy, Seattle. (1908)
Forest J. Goodrich, Dean

West Virginia

West Virginia University, College of Pharmacy, Morgantown. (1920)
J. Lester Hayman, Dean

Wisconsin

University of Wisconsin, School of Pharmacy, Madison. (1900)
Arthur H. Uhl, Director

Notice Concerning Subscriptions

This number completes the Ninth Volume and the ninth year of publication of the *American Journal of Pharmaceutical Education*.

At a recent meeting of the Executive Committee in Washington some thought was given to the possibility of increasing the size of the subscription list and a special effort will be made in the near future to do so. The natural place to begin, it would seem, is within our own faculty groups. If each member of our faculties would subscribe the list would run well beyond the 500 mark. Many faculty members now apparently feel no responsibility in maintaining an educational journal in our own field which is quite a contrast with the dental group which expects every member of the laboratory and clinical faculties to subscribe for the *Journal of Dental Education* which is published by the American Association of Dental Schools. It is published four times a year at a subscription price of \$1.50 and a limited amount of advertising is carried. The *Journal of the Association of American Medical Colleges* is published six times a year at a subscription price of \$3. A considerable amount of advertising is carried. Our own *Journal*, which carries little or no advertising contains a larger volume of worth-while material than either of the other professional educational journals, is dependent almost entirely on subscriptions and what the Association is willing to underwrite.

It is time that pharmaceutical educators realize the importance of supporting their own educational journal. Since the Washington meeting of the Executive Committee, the following note was received from a college dean:

"As I have difficulty in getting hold of the *American Journal of Pharmaceutical Education* because of its frequent consultation by those using our library, about the only way to have a priority is to subscribe. Will you kindly add my name to the subscription list for the next issue." A check was enclosed.

Two other requests come from faculty members who are not subscribers but thought they had been overlooked in the mailing which means that there are those who do not know that the publication of the *Journal* requires financial support.

It is now time to renew subscriptions for Volume No. 10. It will save Secretary-Treasurer, C. F. Eidsmoe, time and the Association expense if your check is mailed at once. Most subscriptions to the *Journal* end with the year. If yours does not, if you will make it do so when you make your next payment, it will simplify the work of the Treasurer.

To all of you who have helped to make the *Journal* what it is through the years of publication, the Editor is most grateful and wishes for you and yours all the joys of the Christmas Season.

Rufus A. Lyman, Editor.

